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Original Contributions.

THE INFLUENCE, ON DEVELOPMENT, OF ARRANGING IRREGULARLY PLACED TEETH INTO NORMAL POSITIONS.

BY E. A. BOGUE, M.D., D.D.S., NEW YORK. READ BEFORE THE BRITISH MEDICAL ASSOCIATION, AT LEICESTER, ENGLAND, JULY, 1905.

Before starting to consider the question that I am about to bring before you, let me say that I have not been unmindful of the influence of adenoid vegetations in producing the irregularly placed teeth which are so generally, if not uniformly, found in connection with mouth-breathing, high arches and nasal stenosis, but all that has been purposely left out, that our attention may be drawn to certain features that have been less discussed, if indeed discussed at all.

I am clearly of the opinion that neglect is at the bottom of the worst cases we have to treat, that early treatment of the conditions now to be considered will result in the prevention of much of the evils of those conditions, and that preventive medicine is the highest level of that art.

I was invited by your committee to furnish something of dento-surgical interest to be read at this meeting, for instance, "The Influence of Development on the Arrangement of the Teeth." This invitation furnishes me with the title of my subject, which will be "The Influence, on Development, of Arranging Irregularly Placed Teeth into Normal Positions."

Many of the evils that we, as orthodontists, are called upon to treat, and many of the diseases which confront the rhinologist, arise from a deficiency in the vital force of the child; an inability to overcome some mechanical obstruction. Every developmental pro-

cess is an expression of vitality. Every defect in conformation or function is an indication of a deficiency in a motor center of power sufficient to overcome obstructions. The expression of deficiency is various.

One of the most common expressions, and one that every dental surgeon and rhinologist should recognize, is irregularity in the

Fig. 1 shows the upper temporary molars inside the arch of the lower molars.

arrangement of the teeth of the child. Sometimes this irregularity shows itself in the temporary teeth, sometimes it shows first in the malarticulation of the first permanent or principal molars.

The lower principal molars of man have upon their outer or buccal side three cusps or tuberosities; upon the inner or lingual side they have two.

The upper molars have two on either side. In the normal position of these teeth, when closed, the anterior buccal cusp of the upper

molar and the anterior lingual cusp sit astride of the outer ridge of the lower first molar, just posterior to, and nicely fitting in with, the anterior buccal cusp of the lower molar. This arrangement is

Fig. 2 is the same mouth open, showing the smaller upper arch temporary teeth and therefore indicating contracted arches of permanent teeth not yet erupted, and contraction or nondevelopment of contiguous bones.

made necessary by the greater width of the upper incisor teeth over the lower incisors.

The same general arrangement exists in the case of the temporary teeth, so that the careful observer may detect irregularities in

the positions of the temporary teeth that are sure indications of malpositions among the permanent teeth *that are not yet erupted.*

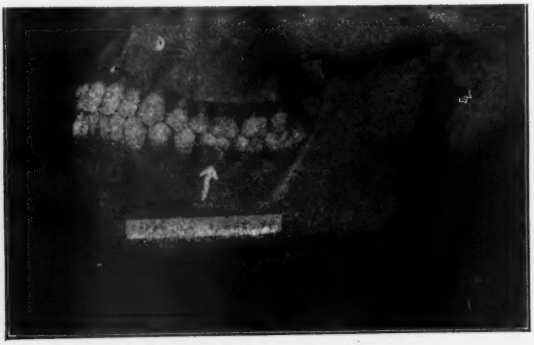

Fig. 3 shows a normal articulation of the permanent teeth. I am indebted for this slide to Dr. Summa of St. Louis.

Whenever there has been loss of temporary teeth, or even excessive decay, and a loss of considerable portions of the temporary

Fig. 4 shows an excessive overbite that would indicate irregularity in the lower arch.

teeth, the principal molars, which are either in the process of development or are just erupting, are pressed forward by the eruptive processes and seek to occupy the places of tissue lost by decay

or of the missing temporary teeth. For example, a temporary tooth becomes decayed, the pulp is exposed and dies. The process of absorption of the roots, so far as such absorption is dependent upon the pulp, ceases and solution from whatever cause is slower; hence this pulpless tooth is an obstacle to the regular development of the tooth beneath, and if this tooth succeeds in emerging from beneath

Fig. 5 shows the irregularity, being the models of the same mouth opened.

the temporary tooth it is deflected from its proper place in the arch.

If the cavity of decay be upon the posterior approximal side of the temporary tooth, toward the erupting first molar, this first molar sometimes leans forward into such a cavity enough to lose its proper position and its antagonism with the lower molar.

if, as in the illustrations Figs. 8 and 9, the last temporary molar

is lost, and the first molar is also decayed on its posterior approximal surface, the tendency of the incoming first permanent molar

Fig. 6 is a case of mal-articulation on the right side of the mouth, temporary teeth.

Fig. 7 shows correct articulation on the left side, temporary teeth. Same skull.

Figs. 8 and 9 show the loss of a temporary molar at such a stage of development that the permanent molars adjoining will inevitably tip forward to occupy the spaces left by the lost temporary molars, and so will destroy the normal articulation with the lower molars.

is to occupy both vacancies and to come forward the full width of a tooth or more. Not only will it come forward, but in coming

forward it will advance on the lines of the arch of the jaw, and the further forward it comes the narrower will be the space between it and its opposite molar on the same jaw.

These principal molars occupy in the adult normal jaw the middle

Fig. 10.—This illustration shows above on the right side of mouth, a second permanent molar that has come forward until it touches the cuspid. (See Fig. 11.) It is plain to see that extraction has not "made room" here, but has greatly diminished the arch.

of the arch between the cuspid and the wisdom tooth. (See Fig. 12.)

As they are in a sense the keystones of these anteroposterior arches they become, upon their eruption, the keys to the situation. for if these four keystones or pillars to the dental arches are *normally* arranged at the period of their development they support

the jaws during the shedding of the temporary teeth and their replacement by the permanent ones, and it is almost certain that all the other molars posterior to these will be correctly arranged. It is also almost certain that the teeth anterior to these keystones may be easily inducted into their places and should they erupt irregularly, it will be practically without pain, and therefore with-

Fig. 11 shows the same mouth closed. (See Fig. 10.)

out detriment to the well-being of the child, whose growth is not thereby inhibited, and whose usual avocations are but slightly interfered with.

These permanent molars, then, which have been deflected from their normal positions, occupy a certain amount of room (space) anterior to what they should, and consequently they crowd out of place the other permanent teeth anterior to the molars, either by a

narrowing of the arch and a protrusion of the incisors, or a bunching of the bicuspids or both. (See Figs. 13 and 13A.)

It must be remembered that the teeth of any given individual are adapted to the size of that individual's jaws and alveolus. There is no such thing as large teeth in small jaws and alveoli, for the alveolus is formed upon the jaws after the crowns of the

Fig. 12 shows a skull belonging to Dr. Summa of St. Louis, that exhibits [see arrow head,] the first molar occupying the centre of the arch from the cuspid to wisdom tooth.

teeth are complete, and it forms around the roots of those teeth that are themselves in process of formation.

But there is still further mischief caused by the decay of these temporary teeth. The development or displacement of even one permanent molar further forward on the arch than it should be.

thereby narrowing the arch, confines and cramps to a considerable extent all those contiguous bones that are in process of development and obstructs their growth. Unless aid is rendered and the mechanical obstruction is removed, the face never gets its full development, the vault of the palate is more or less deformed, there is not room for the tongue, still less for the free use of it. nor for vocal resonance, which fails unless there is ample room and a broad and well-formed palatine arch. Neither will there be full and free inspiration, owing to a diminished nasal meatus, so

Fig. 13 shows the narrowing of the arch and a slight protrusion of the incisors. By courtesy of Dr. Ainsworth, Boston.

that often we find mouth breathing supervening upon the loss of certain of the baby teeth and the development of the permanent molars too far forward in the arch.

It will be perceived, therefore, that if at a very early age we can diagnose positively for impending irregularities of the permanent teeth, it will be possible also in most instances to correct those irregularities, *and without extraction,* during the eruption of the permanent teeth, beginning the operations while the temporary teeth are still among the instruments to be acted upon, broadening the

arches and correcting the articulations of the principal molars.

If this is done at this early age, not only will the growth of the superior maxillæ and the alveoli be promoted, but the growth of the adjacent bones of the nose, palate, head and face will also be promoted. Instead of narrow or saddle-shaped jaws with deficient nasal passages, obstructed oftentimes by undue and excessive con-

Fig. 13A.—The upper model shows the cuspids and the lower model the bicuspids crowded out of place by the upper molar being too far forward.

volution of the turbinated bones and by recurring lymphoid growths, which are promoted by the contracted regions in which they lie. we shall have a resumption of growth in the maxillæ, palate bones and nasal bones, and probably in the ethmoid and sphenoid bones. The nasal septum will be straightened considerably by broadening the arch of the upper jaw and so lowering it, and as this broadening

relieves the pressure and tends to straighten the septum, proper nutrition is encouraged and Nature is allowed to exert her influence toward a development of all the sinuses, which become freer and more nearly normal.

As this gives better respiration, the lungs themselves become enlarged, the strength of the patient increased, and the dignity of

Fig. 14 shows the relation of the nasal meatuses to the adjacent bones, and how the enlargement of the superior dental arch must inevitably have an influence upon them, and tend to promote their growth.

expression which comes with distinct speech, good articulation and resonance of voice, follows as a matter of course.

I will try to exhibit a few specimens of these results as I close.

I am aware of the objections raised to these views, especially on the part of those who say that having been brought up to extract teeth, both for children and adults for the correction of certain irregularities, they cannot see why patients should be allowed to seem "all teeth" when the extraction of a few of the seemingly superabundant ones would so easily correct the difficulty. It is evident that those who make this claim cannot have considered with

sufficient care the processes of growth and the results of a little easily obtained expansion in the regions under discussion.

At birth the ethmoid bone is small, very incomplete, and imperfectly ossified. The hard palate at the height of the arch is above the eustachian tube. In the adult the hard palate is below this tube, consequently, as Dr. Swain, Professor of Otology and Laryngology, Yale University, has correctly observed in one of his

Fig. 14A is a photograph of a skull in the museum of the Harvard Medical College at Boston, showing the entire right side of the skull, including the dental arch, the nasal meatus, and even the foramen magnum out of proportion to, and smaller than the left side, yet to a casual observer the nasal meatuses and the dental arch seem normal.

papers, "the palate has grown away from the base of the skull. What has accomplished this? It has been the downward growth of the superior maxillary bone, the septum and the pterygoid processes of the sphenoid, so that in a certain sense of the word the palate of a young child is supposed to grow down instead of up. It is safe to assume, therefore, that this downward growth is an ex-

tremely important process in our present consideration, and it may be looked upon as a part of the normal growth of the superior maxillary bone."

Now it happens that the sutures of most of the bones of the head and face do not solidify until adult life, and some of them not until middle life; they are, therefore, during all this time subject to change, and if expansion of irregular dental arches is accomplished previous to solidification, it is almost always the case that, stimu-

Fig. 14B are Dr. Hawley's two skulls, showing two apparently good arches having good contact, yet, the nasal meatuses of the narrower arch are as much too small, as the arch is too narrow, while with the wider normal arch the meatuses are ample.

lated by the removal of undue repression of the parts seeking development, renewal of growth will take place. One or two years is quite sufficient time for the changes of such growth to produce a nobler countenance out of a most unpromising one. These changes can be noticed best by photographs taken before and after the operations, by models of the teeth made at the same time as

the photographs, and by plaster casts of the face, which are easily made, and are unimpeachable witnesses as to what occurs.

I have been working along these lines for about five years, aiming to correct irregularities in the positions of the teeth as early

Fig. 15.—The top model shown in Fig. 15 is that of a little girl of 12 years. The lower model is the same mouth 18 months later. (See Figs. 16 and 17.)

as I could get control of them, and that is often from the fifth to the seventh year, the very climacteric in the child's life, when growth begins to manifest itself most strenuously. The results not only in my own cases, but in those of my son, and one of my

former pupils, Dr. Kelsey, of Baltimore, and in a few cases of other practitioners, have gone far not only to convince me of the soundness of my position, but of the soundness of the hypothesis upon which I have worked.

I find by an examination of many hundreds of aboriginal skulls in the development of which Nature has been free to work her will without the assistance of man, and where the so-called accidents of development have occurred as they do with us civilized races, though probably not with the same frequency, that in all those cases

Figs. 16 and 17.—The upper half of the same models, from the occlusal sides. (See Fig. 15.)

where irregularities in the development and positions of the upper teeth exist there are also irregularities, more or less strongly marked in the development of the maxillæ and the palate bones, and seemingly i nthe vomer, the sphenoid and ethmoid as well, and that the nasal septum particularly is sure to be crooked and the turbinated bones so excessively cuved ars to interfere materially with the proper openings of the nasal meatus. When I say irregularities of the upper teeth, I am not forgetting that the upper jaw with its teeth is dependent upon the lower for correctness of position.

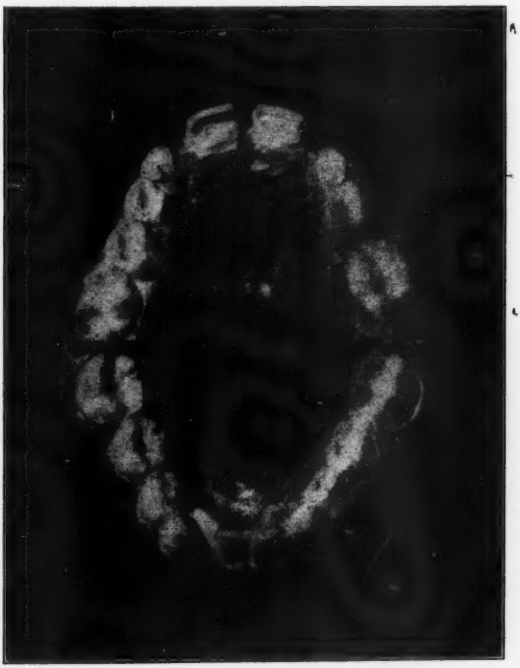

Fig. 18.—John M., 8 years old, open. April 19, 1900.

Fig. 19.—John M., same model closed.

Fig. 20.—Same mouth closed. John M., May, 1902.

Fig. 21.—Same model open. John M., May, 1902.

Per contra, by just so much as the permanent teeth are regular in their development, and are placed regularly in their arches, all the sinuses of the maxillæ and facial bones are better developed, the nasal septum becomes straighter, the turbinated bones less obstructive, the sphenoid and ethmoid larger proportionately to the

Fig. 22.—John M., upper model, April, 1900.
Lower model, May, 1902.

size of the skull, and the facial bones occupy positions that add the dignity of strength to the individual.

Fig. 18; John M., 8 years old; begun May 6, 1900. Last illustration made May, 1902. Fixtures remained on for two years. Actual time occupied in moving the various irregularly placed teeth

into their present positions, sixty days interspersed in different periods during those two years. Absolutely no pain. (See Figs. 18 and 19, 20, 21 and 22.)

Adenoids had been removed in this case prior to the enlargement of the arch. There was no recurrence of that issue. Face and nose both show the enlargement and the teeth retain their normal positions, breathing normal, general development rapid.

Fig. 23.

The next illustrations, Figs. 23, 24 and 25, are models taken from young man, 25 years of age. Patient of Dr. Kelsey, Baltimore. Fixtures placed May, 1904.

Fig. 24: Same mouth, May, 1905.

Fig. 25: Same mouth, before treatment and after. The two upper arches side by side for comparison.

Upon asking the patient whether he could breathe any better

than before the operation, his reply was, "Breathe! I never could breathe before, but now I breathe with perfect ease."

Figs. 26 and 27 are models from a patient of Dr. J. G. Palmer, New York. Boy, 10 years of age—a stooping, round-shouldered, mouth-breathing, delicate boy, whose very walk betokened his feebleness.

Applications have been irregular—on and off almost at the will

Fig. 24.

of the patient—but the final illustration shows the stage the boy has reached at 14 years of age. He has nearly lost his stooping shoulders, entirely quit mouth breathing, strengthened and developed in a remarkable degree, and, I am told, is now willing to wear an apparatus continually.

Do not understand that the single phase that I have to-day presented is any more than one phase in conditions that have taxed the intelligence and the patience of both rhinologists and dentists

Fig. 25.

to the last degree, but if my confreres may be helped over some few of their perplexities by a recognition of their causes and a prompt and early application of the simple mechanical apparatus necessary to correct these deformities, I shall be very glad to have been the instrument through which such a presentation has been made.

Fig. 26.

Four days after mailing this essay to your committee, I noticed in the Dental Cosmos for May, 1905, a paper by Hofzahnarzt W. Pfaff, of Dresden, Germany, entitled, "Stenosis of the Nasal Cavity. Caused by the Contraction of the Palate and Abnormal Position of the Teeth; Treatment by Expansion of the Maxilla," that had been read at the St. Louis Congress while I was ill in the hospital, and

it is along almost precisely the same lines as my paper. I take pleasure in calling your attention to this paper as strongly confirming the views just presented for your consideration. As the two papers were the results of two persons, the one in Germany, the

Fig. 27.

other in America, working unknown to each other on the same subject, the results are worthy of note. While both papers are far from being exhaustive, they at least indicate a subject for further investigation.

WHY THE PROFESSION SHOULD ADOPT PORCELAIN AS A STANDARD FILLING MATERIAL.

BY W. T. REEVES, D.D.S., CHICAGO, ILL. READ BEFORE THE MICHIGAN STATE DENTAL ASSOCIATION, AT DETROIT, JULY 10, 1906.

A definition of STANDARD:

That which has accuracy or authority; serving as a gauge, test, guide, or model; hence, a very high or excellent kind or type. Any type, model, example, or authority with which comparison may be

made; any fact, thing or circumstance forming a basis for adjustment and regulation; in fact, a criterion of excellence.

Having found out what is required of a standard we will see if porcelain fills those requirements better than any other material in our dental armamentarium.

Anything to become a standard must possess the greatest number of points of excellence whereby it becomes the gauge, test, guide, model, example or authority with which comparison may be made, *a criterion of excellence.*

Dentistry as a profession is varied and far reaching, but that branch of dentistry designated as Operative Dentistry has for its sole end or objective point to be attained, the restoration to as near a normal condition as possible (by the use of foreign materials) the loss of tooth substance caused by caries or other accidents. It is but fair in making a choice of what shall be the material to be the standard that we take average conditions. We should not be hampered in the choice of material by time, finances or prejudices, but given carte blanche to use what will result in the greatest good for all time, or in other words, to use that material which will make the filling par excellence in the largest number of cases.

Gold for a great many years has occupied the position of being the standard by which all materials were judged as tooth savers, but how short it comes of being ideal you all know. With the advent of porcelain and the modern technique that has been developed in the past fifteen years, we have a material that equals most of the good points of gold, surpasses many and has some that gold does not possess. I will try to enumerate the good points of gold and porcelain and compare the two materials as we go along. First of all, a material to be a standard must possess the quality of permanency to a high degree and to be permanent it, first of all, must seal hermetically the cavity so that the fluids of the mouth cannot seep in and permit recurrent decay. How sadly gold fails in this respect you all know by the many leaking gold fillings that come under your observation every year of your practice and from the hands of the best operators. There are gold operators who claim that they can pack gold into a cavity and seal it hermetically, but a simple experiment will prove the fallacy of this. I do not believe there is a gold enthusiast who will claim that he can pack

gold into a cavity and make a joint between gold and cavity walls as close as the joint of fused porcelain upon platinum. If you are stripping the platinum matrix from an inlay and it is coming off hard, if you will dip it into water the water will penetrate between the platinum and the porcelain and it will then come off easily. With the use of porcelain to fill the cavity the joint is completed with cement and as long as the cement remains the cavity is hermetically sealed. What that means you can judge.

The average life of a gold filling is placed at five years. Now, there must be a great many gold fillings lasting a great deal longer to bring up the average to five years. You hear about gold fillings that have been in twenty, thirty, forty or fifty years. The forty and fifty year old fillings are rare and it is possible that anything of a fair quality of workmanship would have stood just as well. as it is quite likely that the mouth was immune to caries. We will consider the fillings that have stood twenty and thirty years and are or were apparently as good as the day they were put in. With them when the end came the tooth like the "one horse shay" simply crumbled all to pieces, leaving nothing but crowning possible, and not always that. With porcelain no such condition is possible as long as the filling remains seated. The cement joint hermetically seals the cavity and there can be absolutely no decay under the filling. The worst that can happen with a porcelain filling is its breaking loose from its attachment. When that occurs the patient knows it; the trouble can be quickly remedied by resetting the filling and no harm results. But how about the gold fillings that do not last five years? How many of such you see every year and what a sad commentary upon our skill as a profession trying to save teeth! Take the conditions as we find them every day in our practice, and it is safe to say the majority of our patients are abnormally susceptible to caries. Take the most desperate of these cases where the conscientious dentist hesitates as to what to do, if porcelain is used it will be found to be practically a permanent filling. It is from this desperate class of cases that I have started in to preserve by using porcelain. I have made fillings which have stood for over five years and up to ten and having stood that long I can see no reason why they should not continue for as many or more years. From them I draw my conclusions as to permanency of porcelain as a filling material, for if it will do this under

the most unfavorable conditions, it will do as well, or better, under more favorable conditions. I believe, therefore, we can score one for porcelain.

For restoring contour, contact points and the interproximate space, gold is good, but porcelain is better. There is no doubt in the world but that better tooth contour and form can be restored with porcelain than with gold, and for contact point, porcelain is simply ideal. For preserving or recovering the interproximate space, I believe more is done and can be accomplished with porcelain than was ever attempted with gold; for one of the first requisites to using porcelain is working space. You cannot put in flat porcelain fillings and you ought not to put in flat gold fillings. Working space should be obtained and lost space regained by wedging, previous to attempting any operation. Having such space there is no temptation to stop short of full contour and perfect contact point. With porcelain you can build out to full contour just as well as to stop short of it, but with gold it may mean an additional hour or more of hard labor which neither you nor your patient is able to stand.

Porcelain has brought benefit to the patient in more ways than one, as well as to the operator. Working space being essential to success separation is practiced. The operator noting the benefits that have come to the patient by proper contouring of his porcelain work, and working to this ideal, has his moral stamina raised and continues to separate when other materials are to be used. For restoring tooth form with absolutely smooth contact points and for preserving and protecting the interproximate space, porcelain is unquestionably superior to gold.

Edge strength is a quality that has been loudly talked about and credited to gold only, because all other materials carried to attenuated edges crumble and break. Porcelain fillings having attenuated edges are very friable and cavity formation that would necessitate attenuated edges cannot be practiced.

Edge strength sounds good and theoretically is good, but practically it is a menace to the filling that depends upon the edge strength of the gold and not on the cavity formation. Why is the modern and scientific cavity preparation for gold such that it does not call upon the edge strength of gold for one of the requisite qualities? Because the fillings having attenuated edges of gold,

while they will not break or crumble, under masticatory or other force will curl up or leave the tooth ever so slightly and result in a leaking filling in the early stages of its existence.

Porcelain cavity preparation should be such that there are no attenuated edges, but above and beyond all this porcelain must be properly fused to secure its greatest strength. To-day in all lines of porcelain work more harm results and more failures come through the overfusing of porcelain than from all other causes combined, but if the material is abused in baking failure should not be charged to it, but to the inexperience of the operator.

When the color is considered there is no comparison as to the qualities of the two materials. Porcelain can be made to duplicate all the varied shades of the teeth so that at conversational range a restoration cannot be detected. Gold is a contrasting color and its glitter can be seen as far and often farther than other features about the face can be distinguished. That gold is tolerated at all in the mouth is one of the strange things when you come to think of it. It is through indifference largely that gold is tolerated. The American people have become accustomed to seeing gold in the mouths of the majority of their fellows and constant association brings indifference and tolerance. Some will say that patients like the looks of gold, that they want it, because it makes a showing for the money they have spent on their teeth. Contrasting colors would not be tolerated in the restoration of any other lost organ. Suppose a pronounced blonde with blue eyes, lost one of them and a glass substitute had to be inserted and that person being a great admirer of black eyes should insist that the glass substitute be a black eye. Such a restoration would look like ————; yes, that is what it would look like, and restoring lost tooth substance with gold looks about as badly. Refined people are fast finding out that something can be used instead of gold and that it will preserve the teeth and they are demanding that kind of filling. This is what is going to bring porcelain into general use. These are the main points upon which gold has depended to maintain the position of being considered the standard filling. In addition to these, porcelain possesses several points of excellence that gold does not possess at all. I will briefly mention two or three of them.

Porcelain possesses to a very high degree the quality of compatibility to live tooth. Gold does not possess that quality at all.

All materials used for filling teeth are supposed to protect the teeth from caries, but porcelain is the only material that brings immunity to adjacent tooth surfaces. The area of tooth surface that is replaced by glazed porcelain brings an increased percentage of immunity to adjoining tooth surfaces; glazed porcelain will not collect or retain bacterial plaques or gelatinous deposits. All other surfaces, whether tooth, gold or what not, will retain these plaques and deposits and consequently endanger adjoining tooth surfaces. Approximating teeth having one or more of the surfaces replaced with glazed porcelain are protected from caries fully 50 per cent. In other words, the glazed porcelain brings 50 per cent more immunity to an approximating tooth surface.

The most important consideration of all is the material aid porcelain brings in the work of preventive dentistry, the so-called *prophylaxis*. Where any lost tooth substance is to be replaced porcelain is the ideal material with which to make such restoration, for it will do more than any other material in bringing about the ideal prophylaxis conditions so much desired. Those who are becoming porcelain workers and have entered through the prophylaxis doorway are likely to become the most enthusiastic porcelain men of all.

I shall now leave it for each of you to decide what you will choose to be your standard filling material. As for me and my kin we will hoist the banner of porcelain and follow that standard on to a glorious victory over caries.

I want to digress from the title of the paper slightly, and leaving out the word standard tell you why the profession should adopt porcelain for filling teeth.

It should do so to keep up with the times. Do you know any porcelain enthusiast, who has mastered its technique and made porcelain his servant, who is not successful? Do you know of anyone who has mastered the technique and can use porcelain successfully, who is losing practice? On the other hand, do you not know that all these men are increasing their practices? At the recent Illinois State meeting there were three porcelain men, and three others who did not use porcelain dining at the same table. The conversation turned to porcelain and the question was asked. "Would you advise me to take up porcelain fillings?" The most conservative porcelain man in Chicago replied, "Porcelain has dou-

bled my practice." That is a conservative estimate of what it has done for some of those who have gone into porcelain practice. If it will do that for others, it will do as much for you.

Do not let the cement question frighten you. It is a "bug-a-boo" raised by those who are afraid to go into porcelain. It is true that nothing is stronger than its weakest point, and that cement is called the weak point of inlay work, but with its weak point it is much stronger than all that has gone before. To-day I think no more about having to reset a porcelain filling than you do when you have to reset a crown or bridge. I will cite the most extreme case of resetting in my practice. Patient A, 22 porcelain fillings, work begun June 1, 1899; 13 resettings, confined to 5 or 6 fillings. A year ago I told her that I would not blame her if she was discouraged with porcelain fillings and if she so desired we would put in gold. Her reply was, "I don't want anything but porcelain if I am where it is possible to have porcelain put in. It is not half the bother to me that it was to have my gold fillings decay and have to be refilled." On the other hand is Patient B—and this is only an average case, for many patients never have a filling to be reset—43 porcelain fillings put in during January, February and March of 1901; three to reset and only three new cavities in that mouth since that time. How is that for prophylaxis?

You can do more work with porcelain in a given time than you can with gold. Taking the work as it comes in your practice day in and day out, large and small fillings, when you have progressed to the point that you do 50 per cent in porcelain and 50 per cent in gold you will have gained a technique that will enable you to do the porcelain fillings as rapidly as you can do the gold, and when you have passed beyond that per cent, up to 75 to 90 per cent of the work with porcelain, you will be able to save at least 25 per cent in time, or, to put it the other way, do about 33 1-3 per cent more work. At a very conservative estimate on the average you can get 25 per cent better fees for porcelain than you can for the same work in gold. Now, this is nothing but a simple matter of cold figures and if you will put them down and see what it means to you at the end of the year, I think you will decide that it is best for you to get into porcelain.

What would an increase of one-third in the output usually mean? Longer hours or harder work. But using porcelain and gaining

this increased output, means just the opposite, for the demand on nervous energy and physical strength is so greatly lessened for both operator and patient that work becomes almost a pleasure, and when work ceases to be a drudgery you enter upon it with all your faculties at their best and you work to ideals with a fervor and zest that brings its own reward.

Discussion. *Dr. C. H. Cudworth,* Milwaukee, Wis.: In general I agree heartily with the ideas Dr. Reeves has expressed in his paper, but I think that he exaggerates a little in his selection of the title for his paper. If he had said an inlay was the standard filling he would have come nearer to covering the ground.

Porcelain has its place, and, in my judgment, with rare exceptions, its place is confined to the six anterior teeth and to the buccal cavities of the rest of the teeth of the mouth. It has not been my experience that porcelain was the proper filling for cavities that had to resist a large amount of strain of mastication. I believe that in cavities of that kind the edges should be strong, which can be obtained only by the use of the gold inlay.

There is considerable difference in the preparation of a cavity for the gold inlay and for the porcelain, for we can bevel the margins of our cavity so as to obtain the greatest amount of strength possible to obtain with any material known by using a gold inlay, because it presents a greater resistance to the stress of mastication than the ordinary filling.

In the matter of the dropping out of the gold inlays, or inlays of any kind, I believe that we have improved our technique. I believe that cavity formation is the secret of permanency of the porcelain or gold inlay. Of course, as Dr. Reeves has said, the cement problem is the one that we are "up against" just at present. We have cements that are giving us greater success with our inlays, and the manufacturers of cements are year by year increasing the durability of their product, and I think are trying hard to give us a cement that will be as permanent as the filling itself. When they have accomplished that, we shall arrive at the stage where we can adopt the inlay as the standard filling, but until that time comes we cannot be positive about it. Another feature of the cement problem that makes the inlay lack perfection is the refraction of light. When the inlay is set the infiltration of the cement with

pigments from the saliva practically spoils the translucency of the inlay.

Dr. Geo. F. Burke, Detroit: I believe that it is very important in this work that one should start right, and the best way is to take the course from an experienced expert in order to get the best results. Those who take it up themselves work in the dark for a long time without understanding the underlying principles. The separation of the teeth, preparation of the cavity, burnishing of the matrix and fusing of the porcelain, and finally setting of the inlay are procedures that we do not have to contend with in any other form of filling material. Now, if a person does not take a post-graduate course he must work along for a number of years in the dark, and I do not believe he ever acquires confidence or secures adequate results. In my experience I find that it takes about twice as much time to do good porcelain inlay work as it does to fill with gold, therefore, I charge twice as much for the porcelain as I do for the gold, and that is the reason probably why I do not do more of it. A great many of my patients cannot afford to pay for porcelain. I have not worked long enough in it to develop the speed which Dr. Reeves claims.

Dr. J. M. Thompson, Detroit: There is one place that I want to commend for the use of porcelain. If some of the dentists who are cutting down good teeth and slipping abominable gold or porcelain crowns over them, when they do not need to do so, would use gold or porcelain inlays their patients would appreciate them more, and it would be better all around.

As far as the cement question is concerned, I think that a little stress should be laid upon the foundation upon which you put porcelain or gold. If a tooth has reached that stage of decay where it approaches the pulp very closely, and we find it is necessary to remove a great deal of infected dentin, I do not believe in filling the tooth half full of cement and then putting in a porcelain filling on top of that. The pulp will die under the cement filling, in spite of all you can do. You will find that the figures Dr. Reeves gave you in regard to time being saved and practice being doubled practically correct. I can verify that from my own experience, for not only has my practice increased considerably, but, better still, my health has greatly improved.

Dr. Douglas: I can show you gold fillings, without leaving this

room, that have been in from 52 to 53 years and are good now. They were made with soft gold. I met a lady this morning when I was coming down to the city. She said she had a filling in one of her front teeth that I put in forty years ago. I frequently meet such people who speak in commendation of gold filling, with soft gold. I doubt whether there are many in this room that can speak as well forty years from the time they put in cohesive gold fillings.

Dr. Howe, of the City of Mexico, showed me a tooth taken out of an old burying ground in the Argentine Republic. It had an inlay filling. The filling was of jet, a kind of stone found in China. It was cemented in with a white cement. If they could make a cement so many years ago that would last as long as that lasted, don't be so afraid of cement that you cannot use cement in putting in porcelain or gold inlays.

Dr. Land: I have been annoyed, not because the cement or inlay came out, but because the patients complained of the dark line at the joint. If inlays are not as substantial as porcelain crowns and bridges then you ought to hesitate before using cement in any crown. All Logan, Davis and other pivot crowns always are better when put in with an intermediate stratum of cement. Because you do not hide the joint is no reason why decay would not occur around this filling any more than around any crown cemented on any bridge. If you should put on the rubber dam and hunt for the joint you would be surprised as to how much the cement has been washed out. I cannot abandon the gold or amalgam or any other kind of crown because of this. I have been criticised because I left the matrix on, but I want to tell you that those have been fillings that have stayed, though showing the dark joint and the little line of platinum. Where most needed, and for technical results we must use block putties. These putties can be put through the furnace six or eight times without injury to colors. They can be carved, and are three times as strong as any of the bodies now used. A low fusing putty is not as strong as a high fusing putty. They must be fused in a stronger than white heat if we can get it. For ideal results we must have a furnace that will fuse a higher grade of porcelain than any that is now on the market. Every bit of artificial flux reduces the fusing point and weakens the porcelains and makes them opaque and takes away their translucency.

Dr. Reeves, closing discussion: In regard to what Drs. Cudworth and Thompson said, that if I had said inlays instead of porcelain, I might say that your program trustee selected the subject for me to write upon. A material to be a standard by which to compare other materials for filling teeth must possess the greatest number of points of excellence, and I hoped to show that porcelain did possess in largest measure the greatest number of points. As far as using porcelain in bicuspids and molars, I believe it is the experience of all that have done this work extensively, and increased the range of their practices, that they are successful in filling the bicuspids and molars. One of our prominent men in Chicago, who is considered a very conservative man, cautioned the members of a society two years ago against using the porcelain in the distal teeth. We left the meeting together, and when on the street I said: "Why did you make such a statement? You know better; you are using it there all the time." He answered: "To tell the truth, I am using porcelain more and more in the molars and bicuspids and I do not know why I do not use it more than I do." The porcelain must be baked right, so that you have no friable edges, but you should not bake the life out of it. Having an absolute fit at all parts of the inlay so that there is a minimum of cement in setting it, you should restore that tooth to almost the full strength it had before caries had made any inroads upon it. As for the gold inlay, it does not bring the beauty to the tooth that porcelain does, and you do not have the success in preserving the pulp of the tooth that you do with porcelain.

Dr. Burke spoke about the time it takes him to make inlays. I believe as he increases his use of porcelain work he will increase the speed with which he manipulates it.

ADMINISTRATION OF SOMNOFORM.—My own experience with somnoform is that it is useful in very short operations, such as the extraction of deciduous teeth, or operations upon adults where you can accomplish results quickly, but if you try to prolong the anesthesia by carrying it on until you have a slight snoring, or administer it a second time, the patient, upon regaining consciousness, will usually be nauseated and depressed for a considerable time.—J. A. BULLARD, *Dental Review.*

Digests.

THE TREATMENT OF SENSITIVE DENTIN, WITH SPECIAL REFERENCE TO THE PRODUCTION OF ANESTHESIA BY PRESSURE. By W. D. Miller, M.D., D.D.S., Berlin, Germany. There is one point in the treatment of sensitive dentin which may be considered as definitely established, namely, that by the use of sharp instruments, cutting with the least possible amount of pressure and consequent development of heat, and by thoroughly drying the tissue to be operated upon with warm air in connection with absolute alcohol, we are able to greatly reduce the sensitiveness of the dentin in the majority of cases which come under our treatment.

Other physical agents for obtunding the dentin, such as heat, cold, electricity, have been and are still used occasionally, with varying degrees of success, and a great number of chemical agents have been recommended as adjuncts to dryness and sharp instruments. Of these I will only say that a solution of equal parts of chloroform and crystallized chlorid of zinc, with an addition of cocain *ad libitum*, has given me the best results in cavities of decay. For superficial sensitiveness at the necks of the teeth, nitrate of silver, applied in substance or concentrated solutions and the part protected afterward for a few hours by a covering of Fletcher's artificial dentin, works admirably. Dr. Abbot assures me that the chlorid of zinc applied in the same way gives especially good results without the discoloration.

In Germany considerable use has recently been made of various preparations of the suprarenal capsule in combination with cocain, injected subgingivally in the treatment of sensitive dentin, and the German dental journals of 1904-1905 are full of articles on suprarenin-cocain, adrenalin-cocain, eusemin, etc. The suprarenin-cocain has been prepared after the formula of Braun in tablets containing 1.0 centrigram cocain and 0.1 milligram suprarenin. A tablet dissolved in ½ ccm. of boiled water injected in the neigh-

*For producing anesthesia in extracting teeth these preparations have altogether superseded nitrous oxid and other general anesthetics in most dental practices in Germany.

borhood of the apex of the tooth will, in a great majority of cases, especially in the upper jaw, produce complete anesthesia of the dentin. These preparations are, however, not without their disadvantages; occasionally cases of poisoning have been observed or of sloughing of the gums, and it is claimed by some that the excessive anemia of the pulp eventually results in its death.

More recently novocain has been highly recommended instead of cocain. It is claimed that it is far less poisonous than cocain and nearly equal to it in its anesthetic action. Misch recommends the following combination:

	Novocain	0.1
	Physiological salt solution	10.0
	Suprarenin boric (1:4000)	10 drops
or	Novocain	0.1
	Physiological salt solution	5.0
	Suprarenin boric (1:4000)	5 drops

But even the novocain-suprarenin combination has its dark side. Hamecher (*Odontologische Blätter,* July, 1906) writes that the pain following the injection is often so severe that the patients affirm that they cannot bear it. By an injection of Stovain the pain ceases almost immediately, to return later with increased intensity. Two tablets of aspirin of ½ gram (7½ grains) each, relieve the pain permanently. He observed repeatedly considerable swelling; the edema is painful and lasts as long as eight days. Paralysis of the facial nerve was observed four times; it disappeared in a few hours. General complications not infrequently present themselves, such as a feeling of fever, beating of the heart, dizziness, asphyxia, etc. These symptoms disappear only gradually, and often headache remains till the following day. The ill effects are exaggerated, but still it appears that the injection of novocain-suprarenin and similar combinations *for anesthetizing the dentin* is not so perfect in its results as to obviate the desirability or necessity of improving our more simple methods and applications.

It has always appeared to me that our knowledge of the means of obtunding sensitive dentin is for the most part empirical. Almost every known anesthetic has been tested practically in the mouth and naturally with conflicting results, because the conditions are so diverse in different cases and so many concomitant

factors, such as the degree of dryness, sharpness of the instruments, skill of the operator and the hypnotic effect on the patient cannot be eliminated. Consequently, notwithstanding the millions of experiments that have actually been made in the mouth, we do not yet know what is the best local application for obtunding sensitive dentin.

It seems to me that we ought to be able to accomplish something by experiments on freshly extracted teeth, and in this hope the work to be described was undertaken. The action of chemical agents upon sensitive dentin will depend in a great measure upon the depth to which they penetrate, and it becomes a very important matter to determine. *Under what conditions do we obtain the deepest penetration?* In the first place, the attempt was made to determine the effect of dryness on the penetration. In order to obtain perfectly homogeneous material, blocks of ivory were superficially decalcified and some of them thoroughly dehydrated by use of absolute alcohol and then immersed in a solution of eosin along with others not dehydrated. I was much astonished to find that almost no penetration whatever took place in the former, which I account for by the fact that the alcohol caused intense shrinkage of the decalcified tissue and partial obliteration of the tubules. Drying with chlorid of lime gave better results. I did not feel at liberty, however, to conclude from these results that the use of alcohol produced the same effect on human teeth, inasmuch as in caries of the dentin changes take place which make it differ materially from simply decalcified ivory. The experiments were accordingly continued on freshly extracted human teeth. A large cavity of decay was excavated partially and a thin wall of wax built across from one side to the other (not a simple matter, by the way). One of the two partitions thus formed was dehydrated by alcohol, the other left moist. Eosin or picrofuchsin was now flowed into the separate partitions and after a lapse of 2 to 18 minutes sections made at right angles to the partition to determine on which side the penetration had been deeper. As this procedure turned out to be a very difficult one, I finally adopted the plan of simply sawing the tooth into halves and treating each half separately. As a result of a great number of experiments, I found that *as far as the penetration* is concerned it made very little difference whether I applied the solution to a moist cavity or to

one previously dried with alcohol. Sometimes a slight advantage appeared to be on one side and sometimes on the other. *In practice we would obtain better results by operating on the dry dentin, since the drying of itself destroys the conductivity of the dentinal fibrils.*

On a second series of experiments the comparative penetration of different solutions in water, alcohol, glycerin, peroxid of hydrogen, formalin, chlorid of zinc, etc., was tested on freshly extracted human teeth. Here I found such slight differences that I came to the conclusion it matters but little in which vehicle we dissolve our anesthetic. In some preparations there seemed to be a slight advantage in favor of alcohol, while in others the aqueous solution penetrated more deeply. In particular, my hopes that a solution in peroxid of hydrogen would permeate the dentin very rapidly were not realized. Between glycerin and water I found a slight advantage in favor of the water. Glycerin has been recommended as a vehicle for anesthetics, but in my experiments I found almost invariably the aqueous solution penetrated a little deeper than glycerin, and consequently consider an aqueous solution preferable.

The following idea appears to me to merit consideration in this connection: If we wish to fill any porous compressible body with a liquid, we first exert pressure upon it, by which we empty its pores, and by then immersing it in the liquid it will, by virtue of its elasticity, resume its original shape and fill itself with the liquid. It occurred to me that we might apply this principle to our operations by flooding the cavity with the solution and then exerting interrupted pressure upon the carious dentin. I found by experiments that by going over one-half of a cavity with a burnisher, exerting pressure on the dentin, as if packing amalgam, I could obtain a greater depth of penetration than in the half where this manipulation had not taken place. I have not tried this in practice, though I believe it has been recommended in the dental journals. It is possible that if too great pressure were exerted pain would be produced, but I have no doubt that by this method the penetration of the anesthetic would be increased just as well in the mouth as out of it.

One of the methods of procedure which has caused the greatest amount of discussion in the last two or three years is injection into or through the dentin by means of high pressure, obtained by

one of the various syringes that have been introduced for this purpose. It is claimed that by instruments such as the Wilcox-Jewett syringe one can produce a pressure of 3,000 pounds to the square inch. It is claimed that one can obtain perfect anesthesia of the pulp inside of a minute or two, and that is quite true.

I heard from a colleague that many cases had been observed where inflammation of the pulp followed the application of this instrument. The thought suggested itself to me that it might not be necessary to use a pressure anything like 3,000 pounds to the square inch. A pressure of 500 pounds might not even be necessary. I found that by taking a rubber tube, drawing the end over the crown of a tooth and ligating it and putting a few drops of an aqueous solution of eosin in the rubber tube, and simply pressing the tube with the fingers, I could press the solution through the dentin and thus stain the pulp. It is plain, therefore, that very little pressure is necessary to force anesthetic solutions through the dentin and bring about a more or less complete anesthesia.

When it comes to applying this principle in practice a great difficulty arises. As you all know, various attempts have been made to anesthetize not only the pulp, but the dentin, by pressure, which is produced by the simple method of putting a pledget of cotton saturated with the solution into the cavity, covering it with unvulcanized rubber and pressing upon it with a burnisher. The great difficulty is that the solution oozes out around the margins of the cavity, leaving the cotton dry under the burnisher. Very often we obtain less penetration in that way than if no pressure is used at all. In a letter I received from Dr. Jenkins, he told me he has obtained good results by first introducing his anesthetic on cotton, covering this with unvulcanized rubber, and then drawing a polishing strip across the tooth, forcing the rubber against the margins of the cavity so as to obtain a fairly good contact, and then applying pressure by a flat burnisher. By that means he has been able to anesthetize the dentin.

For a long time I have been in search of a method by which we could keep a solution in a cavity of decay and exert a moderate pressure upon it. We do not need two or three hundred diameters. Half an atmosphere, the pressure of the finger, will suffice. I thought of soft rubber cup-shaped points of different shapes, ap-

proximately the size of the cavity, with holes bored through them, into which we could insert the point of a miniature syringe. Finally the thought struck me that we might accomplish the purpose in the following way. After excavating the cavity as far as convenient and smoothing the borders a bit, take an impression with Stents' composition, endeavoring to get the margin of the cavity fairly well brought out; put a few threads of cotton into the cavity and saturate them thoroughly with a 5 to 10 per cent solution of cocain, cover this with a small bit of rubber dam, and then press the Stents' impression down upon it. We obtain thereby a perfect closure of the margin, so that the liquid cannot escape, and one can then exert pressure with the thumb sufficient to press the solution into the dentin. I went immediately into my laboratory and tried the experiment on freshly extracted teeth and found I could press the solution through two millimeters, while breathing twenty times (about 1½ minutes) in a sufficient quantity to stain the pulp superficially. I got hold of this idea only two days ago, so that I have not had much opportunity of trying it in practice. I had three cases yesterday, one a bad case of caries of the left lower first molar, a sort of leathery decay causing much pain. I attempted, first, by means of a spoon-shaped excavator, to lift out a great flake of softened dentin, but the pain caused was so great that I was obliged to desist. I took an impression and proceeded in the way I have described, and inside of two minutes the anesthesia was so complete that I could excavate that tooth completely without causing the boy any pain. The second case was that of an exposure of pulp in a left upper lateral incisor. I took the impression and proceeded in the same way and was able immediately to extirpate the pulp. The third case was a lower second molar with a cup-shaped cavity; the walls were broken down and there was a certain amount of spontaneous healing of the dentin. In those cases it is difficult to penetrate the dentin. I took an impression and applied the method, but did not succeed in producing complete anesthesia, for the reason just stated. I likewise found that thick layers of softened dentin are penetrated very slowly. In a cavity containing a lump of softened leathery dentin, you may apply the anesthetic and wait as long as you please; it will often have little or no effect; especially is this the case where the cavity is greasy. Also, secondary, and to a

certain extent transparent, dentin are permeated with great difficulty. Secondary dentin forms almost an absolute barrier to penetration.

The point I wish particularly to make is that it has been demonstrated with sufficient certainty that we may, by use of *very little* pressure, force solutions through the dentin, and I hope that others of greater practical ingenuity than I possess will be able to devise methods of applying such pressure in the different classes of cavities which we have to deal with in practice.—*Dental Review.*

COMMENTS ON GENERAL PRACTICE. By Wm. Leon Ellerbeck, D.D.S., Salt Lake City, Utah. Were we to supply a student taking a correspondence school course in dentistry with the various dental journals, from their inception to the present time, containing the writings of "scientific" Tom and "practical" Dick and Harry, what a whirl of indecision and uncertainty he would soon be in as to the proper methods to pursue in almost any dental operation! To begin with, is he to believe that cavity extension to areas of relative immunity as prescribed by some is justifiable, or does this system involve a wanton waste of valuable tooth structure, as claimed by others?

After having opened into a putrescent pulp, and having cleansed the canal—perhaps having treated with sulfuric acid followed by an alkalin carbonate—should he expect a maximum of good results by immediate root filling? Or is there wisdom in another's advice to institute first a series of daily treatments with medicaments, in order to destroy any pathogenic germs that may have found a pasture in the pericementum? Is the pyorrhea which he will encounter in the mouths of prospective patients merely a filth disease, and curable, if at all, by local treatment, or are systemic conditions a causative factor, to be met by general treatment? In orthodontic procedures is he to believe that it is necessary to construct a complex lot of apparatus in order to turn a tooth here and push a tooth there, perhaps extracting a tooth or two to simplify? Is he to believe that "the excessive expansion of the dental arch without extraction results from lack of broad education?" or is he to believe that extraction is a crime, and an attempt to deal with individual teeth fallacious, for the reason that the jaws themselves are

primarily at fault and must be corrected first, properly expanded, etc., and that in the great majority of cases an adjustment of the articulation is the essential move toward correction?

Shall he use a vacuum chamber in a plate to give stability to the fixture through added suction, or does the employment of this device really interfere with perfect adhesion? Ought he to use soft or noncohesive gold for stopping cavities, or should it be used only sparingly, a thin lining being all that is admissible, this to be followed by hard or cohesive gold? In either event shall he pack the material by mere hand pressure—adaptation being the essential requirement, and great density not necessary—or shall he believe others who, admitting the possibility of good adaptation by light packing, yet insist that fillings thus inserted will not stand the masticatory strain or stress, but will ultimately tip and leak and consequently fail, and further, that great density is difficult to attain without rigorous malleting, and that fillings of less than a certain degree of density will absorb grease, inviting a recurrence of decay?

Is he to believe that the teeth in certain mouths—particularly in young girls up to the age of puberty—are of soft structure and that gold for stopping cavities is not practicable? Shall he believe also that caries will recur rapidly under such treatment and that these teeth should be filled with plastics until they are harder? Or is he to believe that teeth vary only slightly in density from youth to old age; that there is little difference, if any, in their chemical composition, but that all are practically of the same hardness; that systemic conditions and the matter of peculiar environment are the principal factors in causing caries, and that with proper cavity preparation on scientific lines gold may be trusted, if properly packed, to preserve these teeth? Is he to believe that it is foolishness to insert gold fillings in deciduous teeth, or is he to follow the teachings of those who claim that they fill the greater percentage of cavities in deciduous teeth with gold and get satisfactory results? Is he to believe, as proclaimed by many, that porcelain fillings are a short-lived fad, that "they are not an advance in dentistry, and that no cement will hold them," etc.; or shall he heed the claim of an equal number, who hold that when properly done they are an ideal filling? Is he to band his crowns, or is he not? Shall

he or shall he not remove the pulps from teeth preparatory to shell crowning? Shall he extract all four first molars, if one be unavoidably doomed, or extract only its fellow in the same jaw; or shall he leave the remaining three intact and take chances on any ill results that may follow from change in articulation? And so on, *ad infinitum*.

Throughout the entire field of dentistry and in the very essentials of practice, there is seemingly little that is settled or agreed upon, and until some such means as the appointment of an international commission, comprised of the ablest, most scientific and skilled of our profession, is selected to recommend to our educators a basis of agreement looking toward the teaching of definite methods and systems of procedure in the various features of dental practice, a wide difference in the merits of the operations of different dentists, who have imbibed their instruction under the tuition of different educators, necessarily must be expected.

In a recent paper I notice the suggestion is made that a prize be offered for the best system of treating alveolar abscess. The suggestion is a good one and should be practically utilized. What dentistry needs above all else is system, and some means of securing adherents to the system. Is the status of dentistry to be based upon that which may be accomplished, or upon the merits of that which is actually done? If upon the former we have reason to feel proud, but if upon the latter much improvement is necessary.

We are advised to "stop the distracting discontent with our dental schools and our dental educational standards," and to "proclaim that the teachers are right, and that the curriculum is right and the very best in the world," etc. We are urged likewise to help our "export trade." Can we do this when we note that much of the product is defective? A short time ago we might have lauded the packing plants as utilizing only sound hogs put up by perfectly sound employes. It might have helped the "export trade," albeit it would not have cured the evil. It is so with our dental colleges; just so long as we find the product imperfect we must better it by honest criticism. "Though the sword be sharp, it will not wound the innocent."

Unquestionably there are dental colleges with high ideals, and

with a fair percentage of competent instructors, who graduate a fair percentage of competent dentists. At the same time it is evident to many that there comes from some source or sources a vast number of incompetents. If the deans of all dental colleges were appointed a committee to pass upon the merits of all the operations performed by the various dentists throughout the country, I venture to assert that they would render a report not at all flattering to our pride. Were I to report upon all the work I have examined in the mouths of my patients—and I am sure the majority of them never have been obliged to seek cheap service—I would say that the greater part had been poorly done. I would say that not over 25 per cent could be classed as either good or excellent. In many instances an almost criminal neglect of inflammatory conditions is shown.

If the work which I have observed is a fair sample of that being done all over the country at large, what are the underlying reasons for this state of affairs? What all of them are I am unable to tell. However, among the things which contribute to this condition, I believe one to be the too plentiful supply of dental colleges. They necessitate a wide scramble for students, encourage laxness in entrance requirements, include too many incompetent instructors, and therefore too wide a diversity of opinion among educators under whose tuition our beginners are to be placed. Too many colleges which furnish the means to keep alive and make potent the lamentable influence of the so-called "practical man"—who most often works too much and reads too little, and who pronounces the work and suggestions of certain of our scientific investigators as of little practical importance—are still willing to believe that a certain mechanical aptitude is the essential requirement of a prospective student, criminally encouraging the unfit to take up dentistry.

By the unfit, I mean those lacking an education in the general sciences and in those studies which tend to develop philosophical reasoning, and who in consequence are unable to grasp fundamental scientific principles underlying right dental procedures.

In reality, most of our educators, because of their training along scientific lines, are more competent to judge of the results of operations than the so-called "practical men," the

majority of whom, unfortunately, are neither trained to observe as carefully, nor to make the most of their observations.

Our duty as practical men is to follow more closely the teachings of our scientific investigators, and to put into execution those principles evolved from time to time through the results of their research. The laboratory man might discover the mechanical virtues or physiological action of calomel, aconite, strychnia, digitalis, diphtheric antitoxin, vaccin, etc., but it remains for the physician to put to practical application the findings of the laboratory man.

The diagnostic value of saliva analysis, as indicating systemic conditions, is a closed book to many of us, and yet there are some men making practical use of this medium. The X-ray apparatus for general treatment and diagnostic use seems to many an unnecessary amount of apparatus with which to burden a dental office, and yet it is being successfully employed. A cataphoric apparatus takes up too much room, and is considered by many as a worthless time consumer, and yet when properly used it is one of the most efficient means of desensitizing dentin.

As a practicing dentist, and as one having respect for my scientific instructors, I wish to say that I agree with many of their teachings, and endeavor, so far as I have facilities and am able to comprehend, to put them to practical use. At the same time, I disapprove of the attitude of many of them who seem to impress students with the idea that work to be done well must be done slowly, for this is but tending to induce in them mental sluggishness through slow action, thereby lessening the extent of their usefulness, and quite definitely limiting their breadwinning possibilities.

Equally as important, to my mind, as instruction in paying attention to detail is the instruction of students as to the possibility of performing operations with alacrity and dispatch. It is as much our responsibility to cause as little suffering to our patients through fatigue as it is to perform our work well. To learn to operate quickly will relieve many dentists from becoming accustomed to and satisfied with a mere day's wage. A prominent eastern dentist, an educator, has informed me of the hours of time he devotes to doing various operations. He may

prepare a cavity one day, partially fill it another, complete the packing at another sitting, and often may require another appointment for the finishing, and he is firmly convinced that the same results could not be obtained in any less time. He is conscientious, but mistaken, and the value of his otherwise good teachings is largely offset by his impractical ideas as to time.

I once stood at the chair of a prominent Philadelphia dentist, a clinical demonstrator, for some four or five hours, watching him insert a medium-sized occluso-approximal gold filling. On a previous occasion he had nearly prepared the cavity. He remarked during the process of the operation that he made no attempt to work quickly, and called attention afterward to the fact that he had not dropped a piece or pellet of gold. He used the cylindrical handle end of an excavator to punch the dam, stretching the rubber over the handle at varying lengths from the end, according to the size of the hole desired, and then touching a sharp knife blade, thus making a round hole. Now, the investment of $3.50 in a dam punch would have saved itself right there with some men, and if the dropping of a few pellets of gold would have saved a few hours, then this small item of carefulness was very expensive and unnecessarily trying to the patient.

I have stood by the chair of the late Dr. Bonwill, and have seen him obtain just as beautiful a result and a filling just as well packed in considerably less than an hour's time. I have heard Professor Kirk remark that "if a tooth is worth a dam, put it on." Sage advice, in the main, but at what stage is it to be applied? In root treatments, most frequently at once, but in cavity preparation its early application by no means is necessary. To do so simply means that the operator is obliged to breathe a great deal of infected tooth dust. I am sure the inhalation of infected tooth dust has its bad effect on the lungs of many dentists.

By those who are believers in "extension for prevention," and who know at a glance in most cases the extent of excavating necessary, much of the cavity preparation may be done without the use of the rubber dam, and I am sure the repeated syringing of debris from the tooth cavity with warm water is more hygienic than blowing the material into the atmosphere with

blasts of warm air. As it is, dentists generally are obliged to breathe too much carbon dioxid and too little ozone, and they owe it to themselves, in so far as possible, to conserve their health. If the "extension for prevention" principle evolved along scientific lines is a tooth saver—and clinical evidence is substantiating that fact—it is still further a time saver.

While, generally, properly selected chisels are to be relied upon, still in order to expedite work I frequently do that which I have not seen advocated, but which I believe to be good, *i. e.*, apply the matrix in preparing approximal cavities in bicuspids and molars where a square base is desired and where there are frequent opportunities of cutting unevenly, perhaps wounding the gum, and perhaps damaging an approximating filling, or roughening the surface of an approximating tooth. I here use the Ivory matrix holder and bands. The latter are inexpensive and are usually spoiled in this procedure; in fact, the bur may be severely damaged. But what matters a bur or two, and a band which costs but a cent or two, as compared with the time saved in expediting the work? By pressing slightly away from the pulp and toward the matrix from side to side, one quickly extends the cavity. A new square-end dental fissure bur often may be used to advantage. This may be followed by the pear-shaped bur, and in order to get the floor perfectly flat, the inverted cone. The bur is held where one wishes it, and with little danger of inflicting damage to the pulp. The matrix, if not wedged, will be sufficiently yielding to permit of the gingival margin being trimmed evenly.

In the filling of occluso-approximal cavities I believe there are too few dentists who employ the matrix. A matrix such as Crenshaw's, when properly applied, is as useful to the dentist as is the miter-box to a carpenter.

From many trials of inserting gold fillings into a steel matrix, I am able to testify that if sharp malleting be employed it will be a great exception if the gold does not press perfectly into each angle, and I doubt if a two-part matrix could be so perfectly constructed as to keep the gold from showing a line where the pieces of steel come together. In a properly prepared cavity it is evidence of lack of skill when one is unable to adapt properly the gold to the walls of the cavity. As to the method

of anchoring the first few pellets of gold by burnishing into thin cement at the gingival seat and axial wall, or using a thin lining of noncohesive gold or tin, and a small fold arranged over the gingival wall preliminary to applying the matrix, there can be no objection, particularly in molars where there is a broad seat; though usually a few tin pellets first loosely pressed over the floor and into the angles, and then condensed under a layer of cohesive gold held at one angle while being malleted at another to insure stability, make it possible to apply the matrix with safety at once. It is generally conceded that tin has some intrinsic preservative quality in contact with tooth bone. A thin film as a lining is sufficient.

So far as my observations have gone, the great percentage of failing gold fillings are those of low density. Inquiry has revealed that a great many of these have been done by hand pressure, perhaps using the sponge gold. I have listened to various demonstrators employed by the manufacturers of sponge golds advocating their wares, claiming that fillings may be quickly built and perfectly packed by hand pressure, and by certain special instruments which they sell also. Good results are not impossible; still I venture to assert that many are careless with this class of gold, and their method of packing explains many faulty fillings. A lining of tin or of soft gold, if you will, followed by cohesive gold in the great bulk of the filling, packed with good and vigorous blows, wherever possible with the Bonwill mechanical mallet, will produce a filling of the greatest density, of the least pitting, and the ability to stand the masticatory strain or stress. I recall a statement made to me by Dr. Bonwill, that the great majority of dentists did not know how to use his mechanical mallet, as they did not screw it up enough, and tapped instead of hitting. While infrequently there are teeth the pericementum of which seems too sensitive to stand rigorous blows, yet there are ways of remedying this, and the time taken here in inserting temporary fillings to relieve this condition is well spent, for the securing of great density through rigorous packing will insure a maximum of good results.

The finishing of occluso-approximal fillings with platinous gold is a method that is too little indulged in. It certainly

gives a hard finish, and is admirably adapted to withstand the masticatory strain or stress, and yet no great amount of this material is used.

With regard to gold in anterior teeth, I have little to say, for here I am a strong advocate of porcelain fillings, and feel that this material has come to stay. No more time is required for the preparing of the cavities by one who adopts a systematic method of cavity preparation than for gold; the time for insertion is much less, the esthetic effects greatly to be preferred, the discomfort to the patient is reduced to a minimum, and the lasting qualities only limited by the ability of the operator.

The average labio or labio-gingival fillings, with proper cavity preparation, giving reasonable time for the making of the matrix, does not require more than twenty or thirty minutes' time to complete, bake and cement to place.

I take issue with such men as Dr. Reeves, who claim that extension to reach free cleansing surfaces is not necessary for porcelain fillings; for if such necessity exists at any time it is still the requirement of the tooth and not the filling material.

In the matter of porcelain crown construction, while admitting that by proper preparation of the root, bands may be so constructed as to occasion but slight irritation, and beautifully artistic results may be obtained, the principle of inlay work applied to such crowns as the Whiteside and the Davis, will secure likewise artistic results without the possibility of irritation, and porcelain is greatly to be preferred in most cases. The method of fitting such crowns is simple enough. It is ground at its cervical portion, so that when placed upon the pin which has been fitted to the root, and its incisal edge in proper relation with the other teeth, it will not touch the root within one thirty-second of an inch of its labial, and one-sixteenth of an inch of its palatal aspect. The crown and pin are removed and high-heat guttapercha is arranged around the pin and the neck part of the tooth, within reasonable limits representing the amount of tooth material to be added. The guttapercha is slightly warmed and the pin and tooth then forced to place. With a very thin warm spatula the guttapercha is trimmed to conform to the root end.

The whole thing is removed, and the tooth with the pin up

is invested in plaster to the junction of the porcelain and guttapercha and low-fusing metal fully trimmed to conform to the edge of this. The pin is now coated with plaster, the rubber ring placed around the pin and guttapercha, and low-fusing metal poured over it. When cool, this is removed and the pin and guttapercha drawn out. A little cup-shaped depression in the mold will be left, into which platinum inlay foil is carefully burnished, just as for a porcelain filling. A hole is pushed through where the pin is to pass, and a little ingenuity in baking and carving enables one to bake this root end, leaving a hole where the pin can pass through into the body of the tooth. Before removing the platinum, the crown is placed on the platinum matrix over the fused porcelain in its proper relation, and the two are fused together, the platinum thereafter being stripped off, when the tooth placed back upon the root should fit as perfectly as an inlay in a cavity.

While not esthetic, the fact remains that bicuspid roots are frequently gold shell crowned. Now, the perfectly cylindrical ferrules usually employed are most unsightly. The architectural construction of the buccal cusp of bicuspids shows it to "consist of three stanchions, of which the middle one is most marked," and the examination of many such teeth shows two faint grooves on each side of the middle stanchion or tubercle extending axially. Whether or not the other bicuspids may show this, it is well to produce this in a gold crown, even exaggerating it, for the reason that a polished curved surface shows a streak of white light, and the matter of having three curved surfaces instead of one increases the white light effect 200 per cent, taking away much of the glamour of gold. Frequently where I have placed a crown thus made in mouths where perfectly cylindrical crowns on other teeth had been employed, patients have insisted on the other crowns being removed, and supplanted with the "crimped" variety. Certainly where gold crowns must be used, the artistic effect of this method is appreciated.

Frequently there is a case of the loss of an upper first bicuspid, and the patient is desirous of having a tooth supplied. The canine may be rotated and unsightly, and through excessive filling may be weak, and may be generally such that it seems best to crown it rather than attempt to use it for inlay or bridge-work. If it

is a case of close bite, or if a lower bicuspid has been permitted to extrude, the construction of a porcelain bridge entirely above is not indicated, because of lack of material to insure sufficient strength. Then the application of a combination porcelain and gold bridge becomes desirable. The porcelain crown is constructed for the canine, a platino-iridium bar having first been soldered and extended from the ferrule to a cavity cut in the second bicuspid, either to be held in place by an amalgam or gold filling, or soldered to an inlay made by fusing platinum gold solder in a platinum matrix. The canine crown is finished in the usual manner, the bar or inlay being held during the baking in some investment compound. To secure sufficient strength in the bicuspid facing it is necessary to use a metal tip and backing.

The porcelain crown having been completed, the bicuspid to be supplied is ground to place and backed. The cusp should be made of gold or platinum and with the tooth soldered to the bar. It is evident, however, that a very unclean fixture will be produced unless some means be taken to insure the solder finishing flush with the porcelain. To accomplish this, first arrange some inlay platinum foil along the post-approximal part of the crown, far enough back on the labial side to be invisible unless viewed directly from the side. The bar having been pushed through it, bring it into contact with the tooth. Spread a little creamy porcelain body on it, burnish it on the crown and bake so that the solder will flow to the thin platinum foil on the crown. Finish up perfectly, leaving no crevice for the lodgment of the ingesta.

Quite frequently a case of the loss of the lower molars on one side is seen. There are several so-called appliances for constructing a removable bridge to supplant these teeth, but most of them are unsatisfactory. The matter of constructing a really serviceable and removable bridge here, to my mind, can be accomplished best by the use of telescope crowns. Where the bicuspids are short, both first and second bicuspids may be used, but where the bicuspids are long, and there is an opportunity for considerable retention in the telescope crown, a second bicuspid is all that is necessary, merely using a half clasp to fit on the first bicuspid to take up part of the strain of lateral movement.

The method of inlay bridgework is bound to revolutionize fixed appliances, eliminating as it does the irritant band, and thus pro-

longing the usefulness of the teeth used as abutments. I think that those who are not perfecting themselves in this method are in danger of being behind the times in an important feature of general practice.

Another condition frequently found is where a central or lateral incisor begins to extrude and protrude, spoiling, especially in women, an otherwise pleasant smile. Often there seems to be some pyorrheal indication, yet treatment does not avail, and the condition seems to progress, to the great annoyance of both operator and patient. One is wont to grind off the incisal portion to secure harmony, and yet this does not effect a cure. For some time I have adopted the method of extracting these teeth and replanting, and with very satisfactory results. Knowing the ultimate result of delay—general weakening through root absorption, etc.—I operate on these teeth early.

After preparing the root properly as for general replanting, and —unless there has been considerable infection—using nothing stronger than normal salt solution in which the tooth is held while being prepared, the root end is slightly trimmed away and smoothed, and if honeycombed, the root-socket deepened. Then the tooth is replaced in normal alignment, and there held until union takes place.

One of the most annoying disfigurements encountered in the mouths of patients is where some disease of infancy has interfered with the nutritive process, and has caused an imperfect calcification of the enamel cap, causing the teeth to be pegged or pitted to a varying extent, according to the severity of the disease and the age at which it occurred. At times the incisal portion of all or part of the twelve anterior teeth is thus affected, the enamel being quite imperfect, pigmented, and decaying, and in young girls and women especially, porcelain tips are required to correct this unsightly condition and to preserve the balance of the tooth. To resort to jacket crowns as some do may be likened to "using a battle-ax to sever the head of a hen," and the method of using pins for attaching the tips is not desirable, especially in the teeth of young people. Generally there remains a part of the dentin below the line of affected enamel which is strong even if pigmented, and with care the tooth may be prepared so as to leave a pinlike projection of this dentin to make an excellent

dowel with which to anchor a porcelain tip. This may be made after the method of constructing a jacket crown.

Dignity is a desideratum in keeping with our great profession, and the matter of too great hilarity in a dental office is to be decried, yet I believe there are many who take their work too seriously and who tend to impress their patients with this seriousness, where a certain joviality might lighten both the spirits of the operator and the patient, and in a measure take away the dread of dental operations. One of the best western dentists I ever have known has quit practice because of the nervous strain, largely induced, I believe, by the overseriousness with which he took his work. While the matter of abstaining from commercial or business pursuits, and the centering of one's whole thought on his work might tend to make one more careful of the business details of practice, yet I am inclined to feel that in our profession, speaking generally, there is no great opportunity for wealth, and that too close confinement to one particular thing is neither broadening nor helpful. A little insight into business conditions and commercial affairs, to enable one to invest his surplus of income over liabilities, and in a general way to present some diversion for mental recreation, is not to be lightly looked upon. I believe that the average dentist will make more money, live a longer and more useful life, by practicing from ten to three continuously, and devoting the remaining part of the day to healthful, recreative pursuits, baths and massage, golf, tennis, driving, etc., than to put in the laborious hours which many do, and which seem momentarily profitable, but which with the great majority lead to mental depression, general ill-health and early decay.—*Dental Cosmos.*

THE DIAGNOSTIC VALUE OF THE CENTRAL FACIAL LINE. By George V. I. Brown, A.B., D.D.S., M.D., C.M., Milwaukee, Wis. In the practice of medicine, surgery and dentistry we are daily learning that with better understanding of diagnosis, therapeutic and operative methods become correspondingly simplified. The usefulness of human lives, or parts, is almost hourly saved or lost in just proportion to the ability of those in charge to make an accurate, early diagnosis. In dentistry the present need is even greater than in other branches of practice, for the reason that literature is so incomplete in this respect. There has

been little written with reference to exact methods of diagnosis of oral disease, or concerning differentiation in the study of symptoms which by exclusion might enable the diagnostician to determine with certainty the nature and cause of pathologic disturbances the origin of which may be obscure and the symptoms confusing.

The chief difficulty of present day surgery of the face, lips, jaws and palate lies in the failure to grasp the underlying principles of development in this region, and want of appreciation of the proper relation of associate parts in their influence upon the form and character of these special divisions of this field.

A large number of cases come to me with the history of one or more previous unsuccessful operations; quite frequently it is evident that the general surgical skill of the operator—who nevertheless failed to secure a good result—was of a high order, but not having recognized some apparently slight, though really important, factor, the post-operative deformity was greater than the congenital one. What is true of the general surgeon in this respect is equally true of the rhinologist, aurist, oculist and the orthodontist, each according to the special conditions of his special field. Happily, present day scientific progress has brought about a fuller realization of the value of recognizing anatomic, physiologic and pathologic interdependence in the treatment of disease, and there is every reason to believe that study along this line will be correspondingly profitable. One should never forget that in dealing with asymmetrical anatomical conditions in every portion of the human organism, as with every pathologic state, there are, first, pre-natal conditions, or tendencies handed down along the line of descent; second, post-natal exaggerations of the hereditary conditions and acquired defects. With the first we can have little to do, since in the working out of the great law of natural or unnatural selection we have not been consulted. Let us be ever so keen in the detection of the stigmata of degeneracy, ever so quick to note neurotic tendency, once conception has taken place these must work out according to the law of heredity, whatever that may be, and subject to the influence of environment.

It is, however, of great value that we should know that with certain types of neurotic predisposition there is accompanying unstable nervous development, and a tendency to irregular cell distribution. This invariably leaves its impress upon bodily de-

velopment, manifest in more or less variation from normal form as recognized, even to the extent of deformity in more marked individuals, in order that the factors tending to their increase may be controlled. No part is free from subjection to these influences, but owing to the fact that with each generation born under the influence of our so-called advancing civilization there is a notable tendency to increase in size of the brain-case, with correspondingly less development of the maxillæ, face, mouth and orbits, it appears that the surrounding cavities or sinuses suffer the greatest difficulty in approaching proper form, or at least structural inequalities are more constantly in evidence through prominence if nothing more.

After metabolism the chief factor, or the one most directly active in determining the size and shape of the face, is muscular force, principally that exerted by the muscles of mastication or of expression and respiration. These in turn are dependent upon development of the teeth, because without normal tooth eruption normal jaws and palate are impossible. Since muscular action depends upon the underlying bony structure, this in turn is disarranged, and becomes in greater or lesser degree a factor in causing mal-development of the superior maxillary bones. Thus the tooth development is affected, which reflects upon the nares, and therefore perfect nasal form and function become impossible. We might continue to follow developmental relationship until our cycle was complete, since the ill effect upon health and growth of both brain and body following mouth breathing, nasal stenosis or nasal disease, and want of oxygenation due to these conditions, is almost without limit in its application.

One of the most practical and yet simple guides is to be found in careful study of a direct line from the center of the forehead to the same division of the chin.

One's eye can determine at a glance whether the nose deviates from this imaginary central division; if the deviation is confined to the cartilaginous or bony nasal structure, or includes both; and if tendency be shown in one portion of the nose to leave this central line with corresponding return of the remaining part. With most forms of malocclusion the mandible is forced more or less out of line when the jaws are closed; and in opening or closing the mandible the nearer the mental process follows this central direc-

tion without lateral variation in its movement the nearer all conditions pertaining to temporo-maxillary articulation will be found to be normal; and conversely, the greater its lateral variation may be found to be, the more one might expect to find disarrangement in the harmony of inferior maxillary relations. With this division in mental view, asymmetrical development of the two sides of the face, and a difference in the orbits or situation of the eyes, is at once noticeable.

A brief glance taken through the heads of embryos at the fifth to eighth week, and at later periods with study of corresponding tooth development, leaves no room for doubt that any cause arresting or increasing either maxillary or dental development must make itself manifest in the size and form of the orbits, the nares, the maxillary and associated sinuses, and the form of the jaw, as well as the arrangement of the teeth. That this defect in the child often can be overcome by using the adhesive plaster strip to set in motion the irregularly attached muscles in a regular way, is shown by the results. In addition to this, if such muscles are attached by surgical means in their proper relation, the tendency is in the direction of progress toward natural form and correct anatomical conditions.

It must be admitted that many persons may be afflicted with pathologic conditions such as are referred to in this connection, without marked asymmetry in nasal form. In the pursuit of the study of true etiologic factors, and the symptomatology by which not only definite knowledge of the nature of existing disease may be acquired, but forewarning of the likelihood of its coming be given, to the end that it may be prevented, no indication is too slight to receive due notice. Each feature of each individual patient becomes important, and any sign that may point the way—no matter how insignificant it may appear—becomes of value if only it lead to the desired end.

The value of considering the points previously noted as being brought more clearly into view by the central facial line will be more apparent when it is remembered that difference in form and location of the eyes, ears and other features, thus made more noticeable, are distinct indications of neurotic conditions, and have a recognized place among the stigmata of degeneracy.

These and other marks of an unstable nervous development are

matters of vital importance, since Kiernan, Talbot, Brower and others have noted and proved by many illustrations from practical experience with individual cases, that during periods of stress, and particularly at about the time of eruption of the first molar teeth, such children are particularly susceptible to peripheral irritation, and upon comparatively slight provocation will develop nervous states of very serious character, notably epilepsy, chorea and nervous habits of various kinds that may be more or less permanent according to conditions and treatment. At about the age of puberty susceptibility to such influences is again apparent, and the foundation for ill health during after life is a result that might often be prevented. Who should be the first to give warning to prevent such catastrophe if not the dentist; and when he knows that high, contracted palatal vaults, deviated nasal septa, adenoids, mouth breathing, ill consummated bronchial and lung development, imperfect oxygenation, therefore anemia, and imperfect bodily development, are all in train at this time and productive of still greater disturbance of an already irregular nervous system, is it not imperative that he take timely note of the many indications that come directly under his eye, and first among them this simple line, that may be said to be almost the key to the situation?

Malocclusion which disturbs the position of the mandible, as indicated by the mental processes being out of line and by irregular movement in action, means that the jaw in such individuals is never absolutely at rest, and unconsciously or otherwise there is constant effort to find that which it should have.

Cryer has proved that changes actually do occur in the condyles and the glenoid cavity, just as we would expect from our knowledge of bone absorption under unusual stress.

At various times and places I have observed the effect of nervous jaw habits and tooth grinding upon diseases of the pericementum, in pyorrhea alveolaris, and similar affections, as also in diseases of the nervous system, such as neurasthenia, muscular tic, tic-douloureux, facial palsy and nervous conditions of lesser degree.

Let him beware who, for the sake of purely cosmetic effect, extracts teeth in the correction of dental irregularity; and again, let him who would keep a regular dental arch once gained take note of this central line in considering occlusion that may prevent future disturbance of esthetic lines.

The inequality of the two sides of the face is an aid in discovering the existence of disease, because with irregular nasal form the tendency to mucous engorgement is much greater, hence degenerative conditions are more likely to occur. The effect upon the Eustachian tubes, and through these channels infection of the middle ear, is also sufficiently clear without extended reference to widespread deafness from this cause.

It is passing strange in view of the facts that have just been submitted that in the wave of universal revolt against the ravages of tuberculosis and in the campaign against its close-competing rival, pneumonia, so little is heard from dentists.

The following quotations from "General Medicine," edited by Billings and Salisbury, seem to voice the essence of my contention so perfectly that somewhat extensive quotations appear to be demanded.

B. Stiller says: "The heredity of phthisis is not the inheritance of the disease, but the inheritance of a weakened constitution, which under favorable circumstances permits the development of the disease. It need not show phthisis in the immediate ancestry, but what is transmitted is the general asthenia. The tendency in phthisical patients to dyspepsia is merely the expression of the general tendency of the asthenic individual to nervous dyspepsia, aggravated by the depression influences of the infection. The premonitory dyspeptic phenomena are also instances of this nervous dyspepsia appearing as the result of depressing influences, which also favor the occurrence of the specific infection. That other types of individuals are necessarily exempt from tuberculous infection is by no means to be claimed, but that the asthenic constitution affords a more favorable soil for the development of the disease would appear to be reasonably well established."

Wood says: "The tonsillar tissue of the throat, because of its peculiar anatomic construction and its topographic relations, is more liable to become infected by tuberculosis than any other part of the upper respiratory tract. In nearly all cases of advanced pulmonary phthisis the faucial tonsils become inoculated. In about 5 per cent of hypertrophied pharyngeal tonsils some form of primary tuberculosis will be found. Primary infection of the faucial tonsil is a rarer condition."

Durck says with reference to living bacteria: "As a rule the components of this bacteriologic flora are quite harmless parasites, either in consequence of the bactericidal power of the body fluids, or because they are continually removed by the leucocytes or by the ciliated epithelium; only, however, to be carried again by particles of dust or inhaled sputum into the smallest bronchioles and the alveoli; or to reach them by their growth along the surface of the mucous membrane. For the development of disease there is needed another factor besides the mere presence of bacteria, and this consists either in some injury to the tissues by which their resisting power is lowered and they become no longer able to restrain the growth of the germs, or in some change of the circulation, by which the tissues and their fluids become better soil for the development of bacterial life, which then becomes able to attack the tissues themselves."

He says further, with regard to pneumonia: "The pneumococcus is indeed the specific cause of genuine fibrinous pneumonia, and, when its influence is great it can, upon reaching the air passages, without further aid overcome the natural protecting mechanism; or when by the weakening of the latter the ground for its development is in some special way prepared."

L. Buerger says: "Normal persons often harbor the pneumococcus in their mouths. Of the 78 cases examined, 39 showed the presence of the pneumococcus." Miller has also demonstrated this.

S. Cohen, in referring to different forms of asthma, includes as one of them "asthma dependent upon nasal or naso-pharyngeal obstruction and irritation."

Again he says: "Asthma may arise from irritation—peripheral or central—in the nose, throat, bronchi, skin, viscera, in the circulatory media, or even in the brain itself."

Parsons says, with reference to the etiology of influenza and conditions favoring infection, that these may be such as will enhance the virulence of the specific organism, or decrease the resistance of the individual, and calls attention to the fact that bacteria from a speaker's mouth have been thrown forty feet.

Leaving out the unsettled contentions of Behring, who claims that infection always takes place from bovine tubercle, and

Koch, who takes the reverse position, denying the transmissibility between human and bovine tubercle bacilli, the sum and substance of modern treatment of tuberculosis resolves itself into increase of pure air and food, better oxygenation and greater assimilation, and rest. Surely our lesson is obvious.

We must regret the tendency shown in recent writings by those high in orthodontia circles to substitute sarcasm for science, for while such efforts may bring more or less discomfiture to the opposing side, no good can result scientifically or otherwise.

The narrowness of an evidently limited view, which prompts whole series of articles upon straightening teeth without due recognition of this influence upon surrounding maxillary and other structures is to be deprecated also.

The comparatively slight heed that is given to etiology of dental irregularities, and this, too, when Talbot has spent more than the working period of an ordinary lifetime in gathering scientific data along these lines, is a matter for regret.

When the time comes, as I surely believe it will, that broad knowledge of embryology and pathology shall be combined with true understanding of normal and abnormal developmental processes, and such knowledge made practically useful through high development of mechanical training, then will health and beauty wait upon our best endeavors as never before, and the benefits conferred pass beyond the bounds of present understanding.—*Dental Cosmos.*

A PLEA FOR THE ADOPTION OF ORAL PROPHYLAXIS. By Grace P. Rogers, D.D.S. A little more than half a century ago the subject of oral or dental hygiene was first considered by our profession. Every year since then a few men have tried to arouse interest in this topic. Although their efforts seemed to produce only temporary enthusiasm, they were not in vain.

Progress of a profession is the result of thought, effort and time spent in some direction by earnest men, and as a result of such an effort we have a new branch in our profession. The advocates of oral hygiene laid a firm foundation, upon which Dr.

D. D. Smith has built so well the principles and technique of oral prophylaxis.

These two subjects have much in common, yet there are differences which should be recognized. A man may take his daily baths and exercise, select his food carefully and eat it properly, surround himself with plenty of fresh air, never worry, drink all the pure water necessary, and, in fact, do everything he can to preserve his health and prevent disease. This man is living according to the principles of hygiene. If to his own care he add that of his physician, who, after putting the patient's system in a normal condition, makes regular examinations of the fluids and organs of the body, thus anticipating and warding off disease, he is carrying out the ideas of prophylaxis.

A man may be faithful in the use of tooth-brushes, tooth-powder, dental floss and mouth washes, and to the best of his ability correct abnormal conditions and prevent disease in the oral cavity, without practicing oral prophylaxis. If a dentist places his mouth in an absolutely healthy state, and then, by regular treatment, stimulates and increases the resistance of the mouth tissues, thus anticipating and preventing disease, and controlling conditions absolutely, he is practicing oral prophylaxis.

In oral hygiene it is necessary for the dentist to do much in the way of removing accumulations which a patient under prophylaxis treatment does for himself, and the care of the mouth is an unpleasant task for both patient and dentist. In oral prophylaxis it is a pleasure. The former prevents some disease, but the latter prevents more.

A few years ago oral prophylaxis was spoken of as a treatment which would cure pyorrhea and prevent some decay. Now it is a specialty in dentistry, not for dental nurses, but for graduate dentists. It is that branch of dentistry which has for its object the restoring of the mouth tissues to a state of health and preserving them in this condition by increasing their resistance to hurtful influences, and by anticipating and removing the cause of disease in them. This definition includes more than the name implies, for the meaning of the phrase is the prevention of disease in the oral cavity by manipulative interference.

No mouth is entirely healthy which has not been under this treatment, therefore we must precede our preventive treatment by a curative one.

To those who have not given attention or thought to this work, oral prophylaxis suggests tooth-cleaning and the monotonous task of polishing teeth once a month, which seems nonsensical and unworthy of a professional man's time. Tooth cleaning is indeed unworthy of our time, unless it is to be followed by regular treatment. The first time a patient presents himself for the work it is always necessary to clean out the oral cavity, and until he has learned to do it for himself we must help him. As soon as we find he is able to give his mouth the proper care, we have the right to reprove if our instructions have been neglected. It may take some time for him to learn to do his part, as it is not an easy lesson, but we must keep up his courage and our own patience.

No dentist should ever perform this work, as it is done in nearly every dental office in the country. The mouth may be relieved of large quantities of irritating and infectious material, but it will be but a short time before there will be a similar amount of deposit in that mouth. The tooth surfaces are not smooth and the roughened enamel tends to catch and hold coatings, food particles, germs and stains. The patient does not know and is not instructed how to care for his mouth.

Every dentist should take a decided stand and positively refuse to clean any patient's teeth unless he can follow up the work by systematic prophylaxis treatment until he has placed the mouth in a healthy condition. It is as much a duty to do this as it would be to refuse to remove only part of the decay in a cavity before filling. Patients must be impressed with the importance of the work. They must be taught the difference between this work and that to which they have been accustomed. We dare not ease our conscience by saying our patients do not want the treatment. As soon as they know what it is and have experienced the difference between a healthy and an unhealthy mouth, they will want it.

Take, for example, a mouth such as the general practitioner sees in his office every day, and to which he pays no attention after he has filled all cavities and made any other necessary repairs. The gums show a state of marked hyperemia, and have receded in several places. Where there is recession, the teeth are sensitive at the necks. There is tartar, both salivary and serumnal, also much soft accumulation and many stains. The patient usually is dismissed without any attention being paid to this condition, which

is a serious one. It may be that the dentist is not able to recognize the difference between this mouth and a really healthy one, because he may never have seen the latter. If he is able to make the distinction, he probably does not wish to be bothered with its treatment, as he is too busy with other work, or is afraid he will not be able to get a good fee for his services. One writer has said, "There is no service so little appreciated by our patients and of so little remuneration to us as the care and attention we bestow in the treatment of the diseases affecting the gums. So true is this and so ignorant do we find otherwise intelligent patients in regard to these conditions that many of us give only casual care, knowing if we go further that our object will be misconstrued and our solicitude will be taken for a desire to collect a fee."

Patients are ignorant in this regard, but it is because we have not taken the trouble to instruct them, and there is no one else of whom they can learn if they would. Who taught them that cavities should be filled, or that an aching tooth could be relieved? No one, I am sure, but members of our profession. No one has told them that it is unnatural for gums to bleed or that pyorrhea can be cured. In fact, most dentists give their patients a mouth wash to stop bleeding of the gums (without removing the cause of the trouble), and tell them that there is no cure for pyorrhea, but that sooner or later they must lose their natural teeth and have artificial substitutes.

This spring, as usual, hundreds of men will be graduated from the dental colleges of our country without any knowledge or experience in the treatment of diseased conditions of the gums or peridental membranes. The new graduates may be very keen in finding cavities and root canals, but they are totally blind to the condition of the soft tissues. They are taught to take care of the house and to let the foundation take care of itself. The result of all this is that we support specialists whose work is to extract teeth. Never in the history of dentistry was there anything which reflected so much disgrace upon us as this fact. It is time to awaken to the importance of saving the human teeth, not by filling alone but by keeping the soft tissues in a healthy condition.

The patient does not know his mouth is not healthy. He may have noticed the gum recession, and the sensitive teeth probably

annoy him, yet he cannot appreciate that this sensation is not due to caries. Unless you question him he will say nothing about his gums bleeding. This is because he thinks it natural, or he has become so accustomed to it that he does not notice it.

Do not begin operations without having made a detailed record of each case, or before you have, with hand and mouth mirrors, shown the patient the condition of his mouth. First call his attention to the color of his gums. Find, if you can, a pink area, and with this compare a deep red, perhaps a purple area, and then point out and explain the cause. Point out places where the gums have receded and tell him why they have done so. Instruct him thoroughly as regards all the conditions present, and the results of these harmful influences, unless you can have control of his mouth.

If such a patient has been under your care for a number of years it is your fault that his mouth is in this state, just as much as redecay under one of your fillings would be your fault. So begin at once and try to make amends for this neglect by restoring the unhealthy tissues to health. Patients must be taught how to brush their teeth, the exact number of times each day, when, where, and why. Give them a practical demonstration in the method of using the brush, powder and floss. The thorough mastication of food is important and you must impress your patients with this fact. Intelligent patients will be interested in the process of digestion, the cause of decay, any phase of bacteriology, anatomy or physiology. All of these have a certain bearing upon this work. It is not necessary to stop working to impart knowledge, but the habit of talking and educating patients while working should be cultivated. You will raise yourself in their estimation if you show them that you know something more than the mechanical principles involved in filling teeth. You will, of course, find some who are not interested, but for those few do not neglect to instruct those who are interested.

There are few operations in surgery more delicate or requiring more skill than the scaling in pyorrhea pockets, and you will be called upon to treat many cases of that much-dreaded disease. It is only by developing the sense of touch to a high degree that success can be attained in oral prophylaxis. You must be conscientiously thorough. The patient must be thorough in his per-

sonal care, or improvement will be slow. If you find any soft deposits, even on the distal surface of a third molar, you should insist upon better care of the mouth. The thorough sterilization of instruments used cannot be too strongly emphasized, for in the first treatments you are dealing almost entirely with lacerated and diseased soft tissues, and there is much danger of infection unless due precaution is taken.

In order to carry oral prophylaxis to a successful issue, it must be put on a systematic basis, and this demands executive ability.

You must not let your patients dictate to you and tell you how often they want treatments, for you must govern and control everything absolutely. If you are a true professional man you understand the subject better than the layman, and this fact is the reason for employing you. How can you give your best service if you allow your judgment to be swayed by an ignorant man's notion of what should be done? A professional man should be an absolute monarch in his office. See to it that every patient is well equipped with everything that is necessary to obtain the results, viz: tooth-brushes, powder, dental floss and a good mouth wash. Do not allow the patient to select any of these, but insist that he use what you prescribe. A record should be kept of every case under treatment, and a note of conditions made after each treatment.

If you are a specialist in dentistry, oral prophylaxis expects much from you, but if you are in general practice she demands more from you. To say that you cannot give up your "valuable time" to prophylaxis is only another way of saying that the prevention of disease is unworthy of you.

If the regular practicing dentist has too much work to do the admittedly important work of preventing tooth destruction, would it not be better to have a few patients cared for in every way, with healthy mouths and teeth that are brilliantly polished, than to have many patients whose teeth are constantly needing repairs, with inflamed tissues and mouths full of infection?

It has been said that tooth polishing is a tedious, irksome, monotonous task. This is not true if the operator can see beyond the end of his stick. If he will only think of the far-reaching results of his work, he will enjoy every stroke he makes. There is stimulation being given the gums, the teeth, the peridental mem-

brane. Health is being imparted to all the mouth tissues, and in many cases the general health is being improved. Mouth diseases of local origin are being prevented, and the gratitude of the patient is no minor consideration.

If we would give our patients our very best services, shall we close our eyes to our duty so that we may not see the wholesale destruction of the peridental membrane and tooth tissue going on, because we would rather be making inlays or removable bridges? You may make if you please a porcelain inlay. It may be perfect in adaptation, contour and color. Yet what have you? You have a repair which, no matter how good, is never as good as nature gave. Would you not be giving mankind a nobler and greater service if you were spending your time in studying the causes which produced the need for repair, and, in so far as you were able, were preventing these conditions?

Exchange treatments with another dentist until you both have healthy mouths. You will be so pleased and grateful that you will put some patients on regular treatment at once. But do not take up the work unless you are going to do it as you should. It is a great work, and we do not want dental nurses or unprofessional men trying to temporize with it. If you cannot take it up wholeheartedly, let it alone entirely and confess that you know nothing about it. Do not try to cover your ignorance on the subject by talking against it and thus retarding the efforts of those who are trying to advance it.

A prominent man in the profession says he can make more money doing other work, and therefore does not intend to give his time to oral prophylaxis. He says he is in the profession for the money that is in it. It is decidedly unprofessional to take that attitude; we are not in a business, but in a profession, and we should not forget this: "A professional man is one who gives his life to the pursuit of his art or calling with unselfish devotion to those whom he is to serve, using every means at his command to perfect himself, both technically and scientifically. Under this definition few qualify, but all can who will."

Discussion.—*Dr. W. H. Graham:* I never could quite understand the difference between oral hygiene and oral prophylaxis. If there is a difference, I think it is rather imaginary. It is like the difference given us, when we went to college, between infection and contagion, and between disinfectant and antiseptic.

The essayist would have us conclude that oral hygiene, or the real treatment of pyorrhea alveolaris, is of very recent origin. It is, undoubtedly, getting more attention now than heretofore, but I question if the real treatment of pyorrhea alveolaris has advanced much in the last twenty years, except in the persistency with which it is treated. I read yesterday an extract from Dr. Garretson's book, which contained an article by Dr. Allen, written thirty-two years ago, and I will quote therefrom a few of his phrases.

He describes a pocket which he found on the lingual face of the central extending nearly to the apex of the root, also a pocket on the right central extending quite to the apex, also a left lateral so badly diseased that the nerve had died.

He says he found that the trouble was due to an accumulation of dark tartar. With the scalers he removed that as perfectly as he could, and after several treatments with the scalers he then treated it once or twice a week for eight weeks with peroxid of hydrogen and other mild antiseptics. He found at the end of three months those teeth had tightened almost perfectly. The elongated lateral had become firm and the pus was entirely stopped. The tissues had regained their normal condition and the mouth was in a healthy condition.

As this was thirty-two years ago, when I say that the pyorrhea alveolaris treatment has not improved to the extent that we might expect, I think I am giving the evidence for what I say. It is true that we now give more attention to the treatment. In the same article he adds that had this tartar been discovered and removed the teeth never would have been in such bad condition. In other words, he suggested the prophylaxis treatment.

Pyorrhea alveolaris, I think, is the most difficult disease we have to deal with, and it is also the most discouraging. Patients come to our offices and complain bitterly that their teeth have been neglected by former dentists, and they plead with us to do what we can for them. We may be as persistent and careful, and as conscientious as we can, but if these teeth are badly affected we know that we cannot restore them to the normal condition. If the isolated tooth is suffering not too severely we know that we can by anchorage and the prophylaxis treatment that has been

suggested accomplish something; but if the arch is entirely involved and the pus is oozing from every socket, and the pockets are so extensive and deep that they reach almost to the apex of the roots, it is a safe diagnosis that all such teeth are practically beyond saving.

When our patients ask us as to the cause of this trouble, we offer all kinds of suggestions. The most prevalent suggestion given is a uric acid diathesis. I think this is a mistake, and it certainly is a serious mistake for us to say this if we do not know that the patient is actually suffering from such a condition.

With the advent of much discussion of this subject we have also in our dental journals much literature from the different pharmaceutical firms, lauding their medicines as uric acid solvents, etc. I think we should be very careful in our employment of all such remedies.

In only a few cases the local or direct treatment will be most valuable. We have cases which are caused by malaria, some by drugs and a few by other diseases. Perhaps in ninety per cent of all conditions, local treatment will succeed if taken in time.

It has been my custom for the last two years to prescribe drinking large quantities of water. I, myself, drink nearly ten glasses a day.

Dr. G. P. Wood: I have been working along the lines that the essayist developed this evening. Dr. Graham has spoken of this idea of curing pyorrhea and the treatment of it being so old. I believe it is commonly accepted that some people did cure pyorrhea even as far back as 1832, but cases were so rarely cured that it did not do very much good.

The idea of oral prophylaxis and the treatment of pyorrhea alveolaris is on the verge of becoming an established specialty in dentistry and may be taken up by specialists all over the country.

I have up to this time not been able to cure pyorrhea and make it stay cured, but now, from what I have seen with my own eyes, and what I have been able to accomplish with my hands, I believe for a certainty that pyorrhea can be cured and made to stay cured by oral prophylaxis treatment.

The regular and intelligent treatment of the soft tissues of the mouth contiguous with the teeth themselves, after the thorough scaling of the teeth and removal of all deposits, is absolutely essen-

tial, and unless this thorough cleansing and polishing process is kept up regularly afterward, the pericemental diseases will recur. There is no doubt of this in my mind. We have some practitioners who claim to cure pyorrhea at one sitting so that it stays cured. I do not believe that we can get permanent results from that kind of treatment.

I used to speak to my patients of constitutional treatment just as Dr. Graham does. I now tell them at once I know the regular prophylaxis treatment, after a thorough removal of the irritating deposits, will cure the disease. I used to recommend some constitutional treatment, but I do not any more. I am not capable of diagnosing the rare cases which need that kind of treatment, so I do not recommend it at all.

The soft deposits about the teeth in treatment of pyorrhea are most important factors. After the first thorough scaling of the teeth and roots, the important thing is to keep the soft deposits off the teeth. I want to refer to one case to verify the importance of this line of work. I had a doctor bring a patient into the office who was highly nervous. She could not bear to have the doctor touch her, but finally I made an appointment with her, and she came, and I looked the mouth over and found she had one or two cavities. I found the gums pink, red and purple and in a bad condition from deposits. I told the doctor that I believed her nervousness and a neuralgia which kept her awake every night was caused entirely from those deposits. I gave one treatment of half an hour, removing the worse deposits to give her some relief at once. Her husband came in the next day and wanted to know if I really believed that treatment was of any value, at the same time he told me that his wife slept all night perfectly easy, and she had not done so before for a week or more. I think that these deposits cause all sorts of troubles that we too often attribute to other causes.

Dr. A. A. Lauppe: I do not believe you can polish a set of teeth by the hand method exclusively. Now, if it takes you three hours, or more, to polish an unclean set of teeth by the hand method exclusively, and one hour by the engine and hand method, which method would you term the successful method from a practical standpoint?

We hear of the wonders of the little wood point. It is a

wonder that humanity has any teeth left at all, after reading the articles. They tell us with that little wood point you can get to every part of the tooth. I don't see how you can get to that part of the teeth where caries most readily commences, just at the proximal contact point. When you come to an approximal surface of the teeth there is a triangular space which is not touched at all. When you work the wood point sideways it strikes a tangent, and there is another triangular space which is not struck. You go around a molar or bicuspid, your wood point is wedge shaped and it strikes another tangent. You know as well as I do that you are often obliged to resort to strips charged with pumice and strings charged with pumice to polish the approximal surfaces of the teeth, in spite of that wood point.

They tell us also that the circulation in the enamel is increased. There is no doubt about it that the set of teeth which is polished every month looks fine. The gums are in a fine condition, the surroundings are fine and there is a nice refraction of light there. But let us suppose that you have a dirty face; you wash it and a good color results. Is it necessary to say that the blood circulation is increased as a result; or, in regard to the finger nails, when they are manicured, is it necessary to say that the circulation has increased because they look better?

They tell us it is useless to clean the tongue, and at the same time they spend hours of time in discussing the cleaning of the teeth. Why neglect the tongue and thoroughly clean the teeth? The tongue is coated often, with dead epithelium and any amount of fermentable material.

They also tell us of the amount of infection in the mouth and the virulent bacteria, then, why is it that wounds in the mouth will heal more readily than in any other part of the body? Why is there not more autoinfection?

Then they place great stress upon the mucous accumulations and tartar about the teeth as causing decay, and yet it is not a fact. Why is it that teeth like the lower anterior teeth, which are constantly bathed in saliva, are the last teeth in the mouth to decay?

In order to get success with this treatment, your patients must be extremely attentive to the daily care of their teeth. Patients must brush their teeth not only before retiring at night, but be-

fore and after each meal using an antiseptic tooth wash, tooth powder, quill, etc. Now, suppose you have a case which you have put in a healthy condition, and that mouth, like the average person's mouth, is not affected with tartar to any extent, is the monthly treatment an essential. Does the success of this treatment depend so much on what the dentist does as it does on what the patient does? I prefer to be more conservative. You understand the monthly treatment is beyond the means of the average person. The average practitioner cannot apply it in his daily practice. If your patient will do all that is required of him for the success of the treatment, and will use pumice and brush once in two weeks or once a month, I believe they can do as much, without coming every month, as the dentist can, providing they are not troubled with tartar.

It is impracticable to practice daily what Dr. Smith requires. Those things look pretty in print, but when it comes to applying them it is a different proposition entirely.

The effect of much of this agitation that is going on, it seems to me, is to stimulate to better service along the line of cleaning teeth. We all cannot succeed in it and there will not be much general success if you cannot stimulate some means of a better fee. I divide the cleaning of teeth into two operations, that of scaling the teeth and that of polishing them. I charge a fee for each and I charge accordingly.

When the patients present themselves to me and say they want their teeth cleaned, I look at them and say that they want to be scaled. Then I tell them that they need polishing. Pyorrhea is a common disease, and it is not difficult to cure in many instances. With some, however, you cannot cure it.

It is all right to have a high ideal, but you have got to apply all that is going on in your daily practice. Ninety-nine per cent of dentists are not practicing this prophylaxis in daily work.

Dr. G. R. Rogers: Dr. Graham made the remark that he believed that teeth that were in bad condition could be put in a fairly good condition. They can be put into perfect condition unless the peridental supporting tissues are wholly lost.

As to the cause of pyorrhea; why is it that local treatment only will cure this disease, and why is it if the teeth are kept in perfect condition the disease does not recur? Why is it that with

teeth kept under regular constitutional treatment we do not get cures?

Dr. Smith used the wood point entirely, but that is not a sign that we should all use it. If you cannot reach the proximal surfaces with the stick of orange wood, use some other thing that will reach it; silk floss is very good for that purpose. If the points get dull you can sharpen them easily.

There may be no circulation in the enamel, but Dr. Smith can show you case after case where the white spots have disappeared, and these usually do not disappear unless the tooth has been under this treatment.

Another question was that of neglecting the tongue, the care of it. That is another thing Dr. Smith does do. He advocates very strongly that we take care of the surface of the tongue and he cleanses it as much as it is possible to do so.

I think the reason why the lower anterior teeth do not decay is that they are often protected by tartar. In college we were taught to remove this tartar, of course, because the mouths were in an unhygienic and unclean condition; we were not given cases of pyorrhea, but simple cases of scaling which have caused local irritation.

Just a word in answer to the statement that the average practitioner cannot carry out this treatment. The majority do not try to carry it out. There are a great many patients in this city that are leaving their own dentists and going where they can get prophylaxis treatment, simply because their own dentists will not give it to them, or say they do not need it, but the patient wants it, and every patient who has it says that he would not get along without it any more than he would get along without washing his face.

It is said that patients, if you tell them they need prophylaxis treatment, will not know what we are talking about. It is our duty to teach them what it is and what it means and to give them enough treatments to put their mouths in a healthy condition. Then they will know what it means; but we should not use the term if we are not going to practice prophylaxis.—*Dental Register.*

THERAPEUTICS OF PYORRHEA ALVEOLARIS. By Dr. Elgin Mawhinney, Chicago. I do not cure all cases of pyorrhea alveolaris that come to me. I have no cure-all panacea for this class of troubles, and if there is one known I do not know what it is.

The term pyorrhea alveolaris, whose etymology would seem to signify a specific morbid condition, is applied to a great variety of disturbances of normal tissues about the jaws.

The first essential in treatment of this class of disturbances is proper diagnosis. There are so many different conditions in different cases, due to distinct causes, that we must know exactly what the conditions are in a given case before treatment can be undertaken intelligently. In some cases the cause may be of constitutional origin, or in addition thereto there may be a local irritant present, or it may be due to local infection or other local causes.

The trouble in a given case may be due primarily to local conditions, such as overhanging fillings, ill-fitting crowns, poor contact points and the like, which must be corrected before curative treatment should be attempted.

Dr. Talbot's studies of the subject of autointoxication as a causative factor in many cases are conclusive. He uses the term to signify poisoning of the individual through the circulation in the blood stream of poisonous products developed in the system, particularly in the intestinal tract, liver and kidneys. These reenter the circulation and are stored up or excreted by the various glands.

In this class of cases systematic treatment is the first essential, and should be carried on by the physician at the same time the dentist is attending to the local conditions. Local treatment alone will never effect a permanent cure in this class of cases.

Every case of pyorrhea alveolaris can be benefitted by careful attention to bodily hygiene, with special reference to diet. All patients suffering from any manifestation of this trouble can be greatly benefitted by careful diet, eschewing meats and sugars and drinking large quantities of wholesome water.

The reasons the country dentist has so much trouble in treating pyorrhea alveolaris are that he does not feel his patient will appreciate the effort sufficiently to pay him well for his time; the diffi-

culty in controlling the time of patients and lack of proper finger training to enable the operator to clean the teeth roots successfully.

A great mistake is made in thinking that country patients do not appreciate the value of such services. If they do not, are you not the one to blame? Have you made an effort to show the patient the need and value of such services, or do you, in common with others, say to the patient: "You will lose your teeth sooner or later; your trouble cannot be cured; you had better not spend money on it?"

When you do attempt treatment of a case, do you make the same effort that you do for filling operations? Do you make treatment appointments, or do you say to the patient, "Come back in a few days again," and when they do come in are you too busy with other work to stop and give the case thorough attention? By such methods the patient is educated not to appreciate the value of services.

The actual management of cases requires that we determine what is taking place in a given case, find out the cause, explore accurately the extent of the pus pockets and discover the extent to which the peridental membrane and alveolar wall are involved, how much necrotic tissue is present, how many teeth are loose, the exciting cause and the local irritant.

This done, the teeth must be cleaned properly. Here the average dentist most often fails. The requirements for scaling the teeth are proper instruments and thorough finger training, so as to be able to use them. Fingers whose touch sensitiveness has been blunted by working in plaster, finishing rubber plates, etc., cannot have that delicate sense of touch which will enable one to tell accurately just when all deposits are removed and also avoid scratching or grooving the root. It needs years of careful finger training in practical work to develop that necessary delicate sense of touch.

Instruments must be delicate, so shaped as to reach every surface of every root and work with both chiseling and pulling motion. They must be stiff enough not to spring over the deposit without removing it, and should be in such form as to enable thorough sterilization. The blade must bear such relation to the shaft or handle that the instrument will not roll or slip out of perfect control while working.

Concentration of effort on one particular tooth until it is thoroughly clean is an absolute necessity. The mouth should be cleaned of all unclean mucus and debris and antisepticized before scaling is begun. Antiseptic solutions should be freely syringed into the pockets while the scaling is being done, that all dislodged substances may be thoroughly removed.

In all cases of deep pockets, difficult of access, simplify the work by previously packing the pocket with gauze saturated in 25 per cent phenol-sulphonic acid, or aromatic sulphuric acid will often do quite as well. The packing should be left for twenty-four hours. By that time the gum will be crowded away from the tooth neck where the pocket is, so as to enable you to see to a great extent exactly what you are doing and scale the root without much pain or laceration of tissue.

The phenol-sulphonic acid has a tendency to soften the calculus, making its removal much easier. For the purpose of reducing the pain incident to scaling pack the pocket with a rope of cotton saturated in a 1 per cent cocain adrenlin solution and allow to remain five minutes. Care should be exercised to pack absorbent cotton around the tooth so as to keep it dry and also absorb any excess of anesthetic, and thus avoid its effect upon the throat, etc.

I get much better results from using anesthetic in this manner than from hypodermic injections. After the tooth is cleaned and the pocket thoroughly washed out, I usually use some acid such as 20 per cent phenol-sulphonic, 20 per cent trichloracetic, pure lactic acid or aromatic sulphuric acid in the deep pockets. If there is a good deal of necrotic tissue and pus I sometimes pack the pocket with gauze saturated in the first-named acid and let it remain twenty-four hours.

There are some cases, particularly the labial of upper and lower incisors and lingual of upper molars, where the pocket is high up and the alveolar wall gone over it, which are easier to reach through an incision in the gum tissues over the pocket. I sometimes make such an incision, and use the pack to open up the pocket before scaling, then proceed as before.

If the tooth neck is very sensitive after scaling I use chlorid of zinc, 20 per cent in tincture of iodin. If there is much regeneration of tissue needed I use Dr. Talbot's glycerol iodin and

zinc. If simple astringent is needed I use iodid zinc crystals. If stimulation is needed I use resorcin.

If I have been thorough in my work I do not expect to see any pus at the second sitting. If pus is present I always assume I have left some deposit on that root, and make another attempt to remove it. I usually see these cases every second day at first, then every third day, and so on until I see them once a month, and when they are finally dismissed I insist on seeing the case every three months.

The gum should receive thorough massaging frequently. Teach the patient to do this. I prescribe a mouth-wash and powder which I think meets the needs of each case, and do not rely on stock mouth-washes.

In very bad cases, where there is considerable recession of the gum and sensitive tooth necks, I prescribe Phillips' milk of magnesia, held in the mouth by means of a saturated piece of gauze held under the lip on retiring.

If there are teeth present that are very loose in the socket they must be fixed by some band or splint or ligature—any method that will hold rigid and be easily kept clean. In upper molar teeth it sometimes happens that one root only is badly affected, which suggests the removal of that root. The root canals of such a tooth must be filled previous to excising. When a pocket ceases to exude pus and the soft tissue lies down close to the tooth, don't force it away again, but dry the tooth neck and adjacent soft tissue and let the medicine used flow into the pocket.

When these cases become far advanced, unless very favorable general conditions are present, treatment becomes very difficult and the prognosis discouraging.—*American Dental Journal.*

THE VALUE OF EARLY DIAGNOSIS. By William A. Raymond, D.D.S., Denver, Colo. We all are more or less prone to make a snap judgment, and not give a careful study to many cases before making the diagnosis. Occasionally such diagnosis proves correct, but more often it is a failure. Most of us will agree that dentists as a rule pay too little attention to the pathological changes occurring about and within the oral cavity, their time being devoted principally to the filling and treating of teeth. Coming in contact as we do with the mouth cavity so much more

frequently than the medical practitioner, we should be able to note any abnormal condition present and to advise our patients in regard thereto. When a patient comes to consult us, our examination should be of the entire oral cavity and not of the teeth alone.

The mucous patches of syphilis or a small tumor should not escape our notice, any more than a cavity in a central incisor. The overlooking of the syphilitic conditions is not only a menace to ourselves, but to our patients. A very slight abrasion on one of our fingers may become the seat of infection, and on account of the virulence of this disease be carried unknowingly to other patients.

The dentist who by his knowledge of the normal condition of the oral cavity is able to make a diagnosis of a tumor, which may be malignant, will in many cases prolong life and also add to his reputation. The impacted third molar is probably the most common abnormality with which the dentist comes in contact. The earlier a diagnosis is made and the offending member removed the better, as we all know the trouble they often cause.

Empyema of the antrum is another disease which sometimes manifests itself apparently as trouble with some of the teeth whose roots are in close proximity to it. In such conditions a careful study of the case and its history is necessary to make the diagnosis. The diagnosis of trifacial neuralgia, which sometimes has its beginning in the dental branches of the fifth nerve, also requires the greatest care.

A short time ago I had the opportunity of seeing a tumor of the lip in one of my patients. At this time the only point in doubt was as to malignancy. As it was growing larger under X-ray treatment I advised him to have it removed before infiltration extended farther. This he did and the pathological examination showed it to be an epithelioma. It is the opinion of the best authorities that cancer extends by the lymphatics and there is no questioning the fact that its early removal is the only hope of saving the patient's life.

Over a year ago a young man was referred to me who had an abscess opening below the angle of the mandible. Several months before it made its first appearance and the surgeon whom he consulted opened and treated it for a short time, when it apparently healed. A month later it reopened, when he again consulted the

surgeon and the same treatment brought the same result. In another month it reopened for the third time, and, the surgeon being out of the city, he consulted another, who could find no apparent cause for it until he made an examination of the teeth. Finding a carious second molar, he referred him to me. Examination proved the caries not to have extended far enough to cause the trouble, but revealed an impacted third molar. An X-ray photograph proved the correctness of the diagnosis. With removal of the impacted tooth and treatment, the abscess readily healed. A careful study of the case in the very beginning would have saved several of the sieges he passed through and at the same time not have shaken his confidence in the man whom he first consulted.

A rather peculiar case was that of a young woman who was referred to me complaining of the second superior molars. Upon examination they were found to be perfectly sound, but it was readily seen that the third molars had been extracted. Upon close questioning she informed me that these teeth had been extracted at different times and in each instance there had been a flow of pus from the socket lasting about a week. This had been more than a year previous and in the meantime she had continued to suffer with an almost continuous headache until she was on the verge of being a nervous wreck. She had consulted a number of men, both in Colorado and the East, but in each instance they gave the same answer—neuralgia. When I diagnosed diseased antra she asked to have them opened without further delay. When this was done there was a profuse flow of pus. With treatment this readily cleared up and the openings healed. There has been no further trouble, although this was more than a year ago, and she has been like a new woman since. I cannot help but feel that had the dentist who removed the last third molar been in the habit of getting the histories of his cases he could have made the proper diagnosis and saved this patient at least a year of suffering.

A miner had suffered for several years with trifacial neuralgia. When first attacked the pain centered in the right lower molars. He consulted a dentist, who removed them one at a time, although perfectly sound, at intervals covering a period of several months. As the pain continued, the bicuspids and finally the cuspid were extracted. At this time he began to use cocain to obtain some

relief. A year later he consulted a physician, who asked me to make a thorough examination of the mandible bone for a possible piece of root; there was nothing of this sort to be found. When I first saw him he had unmistakable signs of tic-douloureux and told me this had been present from the very beginning. As he would not consent to an operation upon the Gasserian ganglion, the inferior dental nerve was removed. He was informed at this time that if relief did not follow this operation, the larger one was the only resource left to obtain permanent relief. He received partial relief for several months and during the summer there was a total cessation of pain, but in the fall it again commenced and rapidly grew worse, so that by winter he was in even a more pitiable condition than before the operation. He returned at this time ready to undergo the operation upon the ganglion, and said he did not care if death ensued upon the table, if he could not get relief from the operation, as anything was preferable to his condition. At this operation, after exposing the ganglion, the nerves were stretched and severed at least an inch below and at the ganglion, and a piece of sterilized rubber placed over the severed ends to prevent regrowth. This operation occurred more than eighteen months ago, and since his recovery he has not suffered the slightest pain, nor is that side of his face paralyzed, as is the case when the ganglion is removed. In regard to this case I can see no good reason why he should have suffered for such a length of time and lost a number of good teeth when it was possible to make a diagnosis several years earlier. In concluding I wish again to emphasize the fact that we should study our cases thoroughly and make our examinations include the whole oral cavity and not limit them to the teeth alone.

Discussion. *Dr. F. H. Sutherland:* Disease is simply a deviation from health, and the only rational foundation upon which steps may be taken to correct the deviation, and restore the patient to health, must be based upon an accurate knowledge of what the deviation is; where located and its extent. Is it pathological, psychological or simply functional? If it is an actual pathological lesion, what is the organ that is attacked, and what is the true nature of the trouble and probable sequence or disturbance in the general animal economy which it is liable to occasion? If, for example, the trouble is psychological it most assuredly proceeds

from some pathological condition of the brain, and the true nature of that lesion must be ascertained if possible. If the deviation is simply functional, what is the organ implicated, and what are the real causes that have led to the disturbance?

While this is a short and I admit a comparatively crude outline of the great fundamental principles which must govern every practitioner in his management and treatment of disease, without it he can never expect his labors to be crowned with even a fair amount of success. How many millions of the human family have been sacrificed in the past, and are likely to be in the future, on account of the failure of the general practitioner to make these principles the preliminary foundation of all his attempts in the treatment of disease! While we readily admit that the origin and cause of many of the diseases that afflict the human family lie far beyond the present knowledge of even the most distinguished diagnosticians, we are still of the opinion that the average practitioner has failed to give to the subject of diagnosis the serious attention which it demands.—*Items of Interest.*

THE MAIN FACTS OF DENTAL JURISPRUDENCE. By Charles S. Ayers, D.D.S., Oakland, Cal. Jurisprudence is that science which treats of the application of the law, and dental jurisprudence is that branch of jurisprudence which treats of the application of the law to the conditions developed by the practice of dentistry. Thus it is limited on one side by the requirements of the law and on the other by the whole range of dental knowledge. To help a court of law arrive at a just conclusion in a dental case submitted for decision, anatomy, physiology, therapeutics, materia medica, chemistry, operative and prosthetic dentistry, or any other branch of modern dental education may play an important part, particularly in helping to interpret properly the evidence brought forth.

The jurist, when appealed to for an opinion as to just what protection is afforded the bearer of the title of D.D.S. and a certificate from the State Board of Dental Examiners, will respond that he has the legal right to perform any and all operations within the limitations or domain of dentistry. But just how far the domain of dentistry enters the realm of medicine or oral surgery he will be unable to tell without careful study, for every day

the dentist is stepping over some barrier which the day before was considered the boundary line between dentistry and medicine or between dental surgery and oral surgery. Without question the dentist may care for the teeth when sound, treat them when unsound or unhealthy, correct their deformities or malpositions and adapt substitutes for those lost by old age, disease or accident. He may extract or fill teeth, perform other operations on them, their alveolar process, and upon the neighboring bones. He is permitted to implant, transplant or replant teeth, and treat diseases of the teeth, gums and antrum, either surgically or medically. In short, he must be competent to perform any operation, treat any disease or pathological condition pertaining to the dental organs, and adopt and practice such systematic treatments as are promulgated by the profession.

For years past there has been considerable discussion as to whether or not dentists are permitted to use anesthetics. At this time it seems well established that they can. But the courts will hold the individual accountable for a thorough knowledge of the methods of administration, and the precautions to be observed. In fact, the courts will consider that, in order to prove himself possessed of ordinary skill, he must have the ability to determine if the patient is in a fit condition for anesthetics; he must know the best drug to use in a certain case, and he must have an accurate knowledge of the nature and action of the drug used. If, in case of accident under an anesthetic, the dentist can prove the above qualifications and that he used due caution, he will be held blameless.

What, then, is dental malpractice? Rhefus defines it as "bad or unskilled practice in dental surgery, whereby an unskillful operation is performed, the health of the patient injured, or his life destroyed by the improper and careless administration of medicines or anesthetics." Three forms of malpractice are recognized by the law—wilful, negligent and ignorant.

When a dentist performs an operation which he knows and expects will injure the health, damage the person or cause the death of the patient, he is guilty of wilful malpractice.

Negligent Malpractice covers those cases where the operator grossly neglects to take those steps which the case demands, as when he neglects to sterilize his instruments and infection ensues.

Ignorant Malpractice is committed when a dentist harms a patient by treatment or an operation which a well-educated dentist would consider dangerous or not suited to the case.

In the practice of his profession a dentist must use the skill and apply the treatments which authorities on the subject, from their experience and researches, have declared to be best adapted to the case in hand. However, this is not to be construed as meaning that he must use the highest degree of skill, but merely a reasonable degree of skill and care. What constitutes a reasonable degree of skill in a certain case is to be decided by the jury, from the expert testimony presented in that case. Proving that he used less skill than some other practitioner might have used is not sufficient for holding him liable. It must be proved that he lacked skill and care to such an extent as to render his operations unstable or dangerous to the patient. In judging how much skill is necessary regard must be had to the advance in dental science and in manipulative procedures up to the time in question or to a reasonable time previous thereto.

While we cannot quote any decisions in dental cases covering the liability for harm resulting from a mistake made by an honest error in judgment, it seems clear from analogous cases in other professions that where there is reasonable uncertainty as to diagnosis or treatment the dentist is thrown upon his own mental resources. If he then acts to the best of his ability he is not held responsible if his judgment leads him into error.

Although the operator employs a reasonable degree of skill and knowledge, he is still held responsible for evil consequences arising from negligence either at the time or in after treatments. The civil law recognizes three degrees of negligence: slight negligence —the want of great skill or care; ordinary negligence—the want of ordinary care or diligence; and gross negligence—the want of even slight care and attention. Since it is required that caution be used in proportion to the seriousness of the case, the degree of negligence is to be determined by the jury from the evidence in the case in question. In this connection the well-known doctrine of contributory negligence applies to determine the liability of the defendant. That is, if the harm complained of was caused in part or augmented by the failure of the patient to follow instructions,

or by his applying some treatment not recommended by the dentist, the latter cannot be held responsible.

A contract may be defined as an agreement between two or more persons, for a sufficient consideration, to do or not to do certain things. This agreement may be written or oral, expressed or implied. An expressed contract results when the parties agree in words—either written or spoken—just what each is to do or not to do. On the other hand, a man, by his actions or the nature of his business or profession, may place himself in such a position as to make an offer, which, if accepted, results in an implied contract. For instance, when a dentist hangs out his sign he offers to do dental work for anyone who will pay for the same. Now, when a man seats himself in the chair and allows himself to be operated upon, he and the dentist enter into an implied contract. The dentist binds himself to possess and use a reasonable amount of skill and care. The patient, on his part, is bound to pay a reasonable fee—fixed by the first party—for the services rendered. An implied contract will hold in court the same as an expressed one.

The matter of charging for broken engagements has often come up in the courts and it has been decided that the dentist has the right to charge for time actually wasted. That is, if he makes an appointment and the patient fails to keep it and he does not use that time for other purposes of his profession, he is entitled to the same fee he would have earned by performing the contemplated operation. If, however, he does use that time operating upon some other person, he cannot collect from the first party. These rulings are justified by the fact that a professional man's time is the capital whereby he earns a livelihood. If a certain part of that is set aside and not used, the one causing the waste by his failure to arrive at the appointed time should compensate the dentist for this loss of capital. But, if there is no loss, there should be no penalty.

Although claims and even suits have been brought to compel the services of a dentist where he has refused to render them, there is no foundation in law for such an action. As he is not a common carrier, his services at first are voluntary. But, once having assumed a case, he is bound to continue to the end unless discharged, or till he has allowed the patient ample time after declaring his

intention of giving up the case, to secure the services of someone else.

When a person requests the services of a dentist to be performed upon and for the benefit of another person, he cannot be held responsible for the fee unless he explicitly guarantees in writing the payment thereof. This does not, however, include people within what the law terms the "domestic relation," that is, unless the person requesting the services bears the relation of husband and wife, parent and child or guardian and ward to the one receiving them. In the latter case the mere request for services renders him responsible for the payment of the debt.

If a married woman contracts for necessities to be furnished herself or the family of herself and husband, the presumption of the law is that she is merely acting as his agent and that he is the responsible party. The wife, however, may assume the responsibility by her express promise binding her separate estate for the payment thereof.

The general law of the liability of infants applies to dental bills. As a rule a minor is not responsible for any agreement he may enter into, because, if he wishes, he may void the contract by declaring he is not of age. In cases where the parents or guardian refuse to supply those things necessary for life and health, a stranger may order such necessaries and the parent or guardian becomes responsible. Since, then, a minor cannot be absolutely bound by any contract he may enter into it behooves the dentist to make all agreements or contracts with the parent or guardian. If a child comes alone to the office for services, it is best to ask him to bring a note from his parent requesting that the work be done.

When dentistry first became recognized as separate from medicine and for many years thereafter, it was considered that dental work—beyond the mere extraction of an aching tooth—was a luxury to be indulged in only by the wealthy and the fastidious. With the development of the science its usefulness broadened to such an extent that the mass of the people began to realize that it was a luxury no more, but a real necessity to have the teeth repaired and preserved. The next step was the promulgaion and demonstration of the importance to the general health of the thorough mastication of the food. Arrived at this stage, it became apparent that it was a necessity to supply artificial substitutes for missing teeth.

As remedial agents and surgical manipulations advanced, the education of the laity took another stride forward, until the courts have held that nearly every operation in the whole range of dental science is a necessity. Therefore, a husband is responsible for professional services for his wife and child and the guardian for his ward.

Perhaps the most intricate and exacting part of the practice of law is that pertaining to the estates of the deceased, for it has been the special care of the courts to protect the rights of those who cannot appear in behalf of themselves or their heirs; but so far as we are concerned—that is the collection of money for work done before death—the law is simple and definite. The itemized account should be sworn to before a notary and filed and presented to the executor within a certain specified time. To be certain of being within this time limit, it is a good plan to render your bill as soon as you learn of the death of the debtor.

Under the statute of limitations, an account which has run for two years is barred and cannot be collected. In reckoning this, each item runs from the time the indebtedness was incurred. But, if there is an open and mutual account between the parties, the time does not begin to run till a settlement has been made. For example: D, the dentist, is caring for the teeth of T, the tailor, and T is making clothes for D till T has made two hundred dollars' worth of clothes and D has done two hundred and fifty dollars' worth of dental work. Now T cannot successfully plead the statute of limitations till two years after they have agreed that the two hundred dollars of T's bill shall offset two hundred of D's bill, leaving a balance of fifty dollars due D.

The partial payment of an account does not extend the time. An obligation in writing runs for four years after maturing. So if you fear an account will be barred by the statute of limitations, it is good policy to obtain a written acknowledgment of the indebtedness, or, better yet, a note for the amount due.

When presenting a case in court, much importance is attached to the manner in which the books are kept. Well-kept books are seldom attacked and then almost never proved false. On the other hand, carelessly kept ones are sure to be questioned and often proved inaccurate. Proving the inaccuracy of the books is almost the same as proving their dishonesty, for the dentist will then have

to prove the justice of his claim by outside testimony. This, as you know, is a difficult task at the best.

Those books combining the day book and ledger and using signs and symbols instead of plain language are looked upon with disfavor by court and jury if they are not thrown out entirely. Each item should be entered in the day book the same day the services are performed. To carry the greatest weight and give the appearance of honesty and accuracy, the date, item and price should be entered separately and charged to the one who is to pay it. Several fillings or treatments should not be lumped and one charge made for all.

My advice is: Learn what you can and what you cannot do legally. Then, if any case of importance arises, hire a lawyer even if you think you understand the situation perfectly.—*Pacific Dental Gazette.*

ORAL SEPSIS IN OPERATIONS ON THE THROAT. By Wyatt Wingrave, M.D., Durham, England. At the Central London Throat and Ear Hospital it is customary to see every case of tonsillotomy on the eighth day after operation, when quite 80 per cent are either completely healed or nearly so. But there remain some patients in whom the "stump" is very unhealthy looking, disinclined to heal, and complicated with middle-ear infection and constitutional symptoms. These are almost invariably the subjects of oral sepsis, malnutrition, or neglected sanitary measures—personal and domestic.

Although insanitary surroundings of the patient may be credited with much responsibility for complications, it is remarkable how few children of even the poorest class, living in the filthiest surroundings, are ever subject to protracted healing or other complications when the simplest measures for insuring mouth cleanliness are carried out. The healing of so large an area as that occurring in a bilateral tonsillotomy, together with a "raw" nasopharynx, *must* be influenced by a septic mouth.

Although the mouth, fauces and oropharynx at all times may each be considered a perfect garden of germs it is fortunate that under normal conditions the nasopharynx is practically sterile. This may be due in part to the effective filtering action of the nostrils

and the activity of the ciliated epithelium, but also in no small degree to the rich outflow of leucocytes and alexins from the healthy mucous membrane and lymphoid tissue of the parts. If we are right in attributing a protective power to these lymphoid structures, surely special care is demanded after their wholesale suppression, as happens in tonsillotomy and the removal of adenoids.

How can the parts be cleansed? Anterior or posterior nasal douching is not to be recommended except in very rare cases, owing to the danger of infecting the middle-ear through the Eustachian tube. The careful introduction of boricated vaseline on a camel's hair brush, or the tip of the little finger, well into each nostril, will excite sneezing and a copious nasal flow which generally clears the passage from accumulation. After from twelve to twenty-four hours, a solution of 1 per cent of Peruvian balsam in liquid vaseline blown with an atomizer into the nostrils will keep the parts clean and sweet.

Cleansing of the mouth and fauces is far different and demands more energetic measures. As already stated, complete asepsis of this region is practically impossible, but much can be done toward cleansing and keeping it clean. If the teeth are decayed a thorough treatment at the dentist's hands is indispensable, for no case should be operated upon at any age when suffering with carious teeth. The younger the patient, the greater will be the difficulty, for infants and young children naturally resent all attempts to cleanse the mouth or throat, whatever method may be employed. But, fortunately, the younger the child is the lower is the septicity of the mouth. Gargles are out of the question; therefore swabbing, irrigation, or direct application by sucking the different drugs must be resorted to in infancy and early childhood.

We will first deal with infants. Should there be any thrush, a gentle but thorough swabbing with glycerin of borax on a firmly applied cotton-wool mop every few hours, and careful avoidance of reinfection, will soon clear off the patches. But strict assurance must be taken that the parts are quite free before attempting operation. Although there are many other far more rapid and thorough antiseptics, they are irritating, unpleasant in taste, or so harmful if swallowed as to impair their practicability. Boric acid in 10 per cent solution, sanitas in 1 per cent and lysoform in ½ per cent, are all useful, especially the last, but for general use by the nurse

a tablet of formamint, crushed and carefully closed in a piece of butter cloth, the ends being secured by stout threads and held, after moistening in water, may be placed in the infant's mouth for a few minutes several times in the course of the day. It readily dissolves in the saliva, has a pleasant taste, is non-poisonous, and yet most effectively controls bacterial growth and consequent fermentative processes.

In the case of older children and adults even the more active measures are demanded, since a septic state of the mouth is generally either more pronounced or more likely to occur. In them even greater precautions with regard to the teeth must be taken, especially in cases involving treatment of the accessory nasal sinuses. A stronger mouth douche at such ages can be employed successfully, owing to the patient's intelligent cooperation, supplemented by the tooth-brush. Gargles are best avoided, especially when the parts are inflamed, from the great risk of swallowing the fluid or from causing pain and irritation due to its getting into the sensitive nasopharynx and larynx.

The most satisfactory substitute for gargle is either a mouth douche or a soluble lozenge. If the former is used the mouth should be partially filled with the solution, the head thrown back, and the lips closed, while the tongue's movements distribute the fluid.

The list of available mouth antiseptics is a very large one, but few of them are free from shortcomings however powerful their antiseptic action may be. Phenol, if employed in sufficient strength to kill bacteria, is not only unpleasant but actually poisonous. Liquor carbonis detergens, creolin, cyllin, etc., are equally unpleasant but less toxic. They are relatively stronger, perhaps, as bactericides, and good deodorants. The different permanganates are certainly better, especially permanganate of zinc. This is not only effectual, but pleasant, and far superior to the sodium and potassium salts. One tablet (one-tenth of a grain) should be dissolved in half a tumbler of water. Preparations of menthol, eucalyptol, thymol, and other volatile oils, are only deodorants. Biborat and bicarbonate of sodium are useful adjuvants since they dissolve mucin, but, like boric acid, have but slight antiseptic power. In this class also are salicylic acid and its salts, which are solvents of epithelium. Chlorinated soda is undoubtedly valuable, especially when there are specific ulcers and much fœtor. Weak solutions of sulphurous acid

readily "kill" mold deposits such as thrush, aspergillus forms, leptothrix, and spirochætæ. Sanitas and different preparations of peroxid of hydrogen are not only good disinfectants and deodorants, but they are especially valuable in being non-poisonous. Formalin must be used in very dilute solutions, and only employed in the mouth owing to its pungency and irritative action upon the more delicate respiratory tract. Lysoform, however, is less pungent, and as a mouth douche in ½ per cent solutions it affords a highly antiseptic and powerful deodorant. Martindale's combination with lavender is pleasant and effective. It need scarcely be emphasized that the salts of mercury should be used by the surgeon only. Acetozone is not only useful in the mouth, but may also be employed as a nasal spray (ten grains to one pint of water) in the same way as Löffler's solution. A strong antiseptic is not necessary, since the requisite cleanliness is certain to follow even slight stimulation by the outflow of exudate and leucocytes.

Although the foregoing selection includes but a few of many antiseptics, it is sufficiently representative to afford a trustworthy choice. Personal experience, however, enables the following preparations to be specially recommended: Formamint is a non-toxic and trustworthy antiseptic in all ages and all kinds of oral sepsis; permanganate of zinc for daily use, and as a night and morning douche; lysoform, with or without lavender; sulphurous acid and liquor sodæ chlorinatæ in cases requiring a special preliminary swabbing and douching; and salicylic acid dissolved in borax when there is much epithelial accumulation. But, as already mentioned, it is impossible to sterilize the mouth and keep it sterile by these or any other antiseptics. Nevertheless, the risk of autoinfection during operations in its neighborhood may be greatly reduced by their intelligent employment.—*Lancet (British Dental Journal).*

METHODS AND EQUIPMENT FOR BEDSIDE DENTAL TREATMENT. By H. T. Smith, D.D.S., Cincinnati, Ohio. The subject of bedside treatment should be under three headings, firstly, its desirability; secondly, its feasibility; thirdly, its methods and equipment. The ordinary idea in all dental professionalism is the comfort of the patient and the relief of pain. To this idea, any restorative operation or cosmetic treatment should be

secondary and subsequent. There follows, then, the necessity of giving a patient the responsibility of whose case has been undertaken by a dentist the promptest relief possible, even though that patient be confined to his home.

There are two classes of patients whom it is desirable to visit for dental treatment—those who are actually confined to the house and those we may call the walking cases.

The first class includes patients confined to the bed or at home by dental disease or other illness, chronic invalids, elderly people confined by the infirmities of age, women in expectant motherhood, children with contagious diseases, and those suffering from accidents involving the teeth. The number in this class increases materially with the inclemency of the weather. To all of these calls the dentist feels obliged to respond.

But it is to the second class, the walking cases, that I wish to call your attention. It includes particularly those patients, requiring dental treatment, who visit our offices from day to day, not sufficiently ill to be prevented from coming, but whose strength and vitality are nearly exhausted at each visit and who finally are put to bed as a result of such exhaustion. Such a patient is usually under treatment at home by his physician, and it would seem the plain duty of the dentist to visit him for dental treatment in the same way. Why is this not expected of the dentist, and why does he not do it? My observations of the excellent methods of home treatment, with the carefully studied equipment adopted by oculists, rhinologists, and other medical specialists who conduct office practices similar to those of the dentists, lead me to believe that we have been somewhat derelict in this particular department of practice.

The feasibility of bedside treatment depends upon the flexibility which the dentist is able to inject into the routine of daily practice, as well as upon the appreciation of his clientele, and upon his ingenuity in devising a satisfactory equipment.

A busy practice, systematized by years of study to make each hour count, does not readily bend from its established routine. It is just such a practice, however, that will properly compensate the dentist and show its appreciation of his care for the health and comfort of his patients. My observations have been that the thanks and appreciation for such treatment are very gratifying and

out of all proportion to that for similar treatment made in the office.

It is my practice to make these visits either early in the morning or at the noon hour, or in the afternoon after regular office hours. My assistant accompanies me, being even more useful there than in the office, in setting up the dental engine, arranging the instruments and assisting in the treatment.

The apparatus consists essentially of a physician's operating bag, carrying a modified dental engine, the operating instruments and mouth illuminating apparatus. The instrument case is one known as the half-cabin physician's bag, about 17 inches long and 6 inches wide. The lower portion is removable and contains instruments, trays and a complete set of half-ounce glass-stoppered medicament bottles. The upper portion carries the engine, illuminating apparatus and other larger objects.

The portable dental engine is a most important part of the equipment. In more than 50 per cent of these bedside treatments the operation of opening up the pulp chamber or root-canals is involved, and the ineffectual struggle to accomplish this without the dental engine is most annoying.

The engine equipment is carefully selected to furnish the sharpest and most rapid cutting burs. A full set of Beutelrock hand and engine root-canal instruments has been of the greatest use. The broaches, canal-dressing instruments and pluggers are just as important. The explorers, scalers, extracting forceps, elevators, crown-slitting instruments, mouth props and the larger instruments are transferred from the office operating room to the carrying case at the time of the visit. They are sterilized in the office, and placed in sterile towels which have been sewed into pockets, so that they become instrument rolls, easily washed and sterilized for each visit. Napkins, cotton rolls and a saliva-ejector operated by a handbulb are always taken. A hypodermic syringe, ethyl chlorid tube and other apparatus for local anesthesia are included.

The subject of a general anesthetic is one to be solved either by the dentist or the attending physician. I have a portable nitrous oxid apparatus available at all times, and the somnoform equipment has been found satisfactory and compact. Of course, the materials and instruments for making temporary fillings and

dressings and oxyphosphate fillings are necessary, but permanent forms of fillings are not attempted.

A surgeon's case of lances and probes is carried in the upper portion of the bag and a reliable alcohol lamp is included. When the residence visited has the incandescent current for illumination, a sixteen-candlepower lamp with reflector and handle, and a good length of cord with socket plug is used. An electric battery hand lamp is provided when current is not available.

Weeks and months may elapse without this instrument case being used at all; then again in very bad weather a patient may be treated every other day for a week.

It is a method that might be abused by the patient, probably also by the dentist; but this kind of dental treatment is expensive, and that fact will readily keep it within bounds.—*Dental Summary.*

PORCELAIN BRIDGES WITHOUT REMOVAL OF THE PULP. By Guy Vinton Smith, D.D.S., Aurora, Ill. Of late advanced steps have been taken in the development of porcelain bridges, either with or without a platinum foundation.

Porcelain bridges have the advantage of being more durable under the stress of mastication than gold ones, and they are as serviceable as gold if the porcelain is properly manipulated. A four- or five-tooth porcelain bridge with no metal used whatsoever has been proved as durable and more lasting than a gold one. The durability of porcelain depends not alone upon the manipulation of this material or upon its density, but upon the quality of the porcelain. In my estimation, the higher the fusing-point of the porcelain, if it is properly baked, the greater the value it has over the low or medium-fusing porcelain. Having used a number of porcelains, I think I can safely say that a porcelain fusing at 2650° Fahrenheit is the most suitable one for bridgework.

Again, porcelain is not so ghostly to look upon as a bridge backed with gold, or one with gold abutments and bands.

Porcelain is more pleasing to the gum tissues than a gold band at the gingival neck of an abutment. The gum tissues seem to recede from the gold, while when porcelain is used at the gingival margin it conforms itself about it, and after the irritation of cementing the bridge subsides it assumes the same appearance as the adjacent teeth.

A porcelain bridge with a platinum foundation naturally is stronger than the one devoid of a metallic framework. This work is advocated in the extensive bridges, but the smaller ones may be constructed of porcelain without the aid of platinum. A bridge, as we all know, is the assembling of one or more dummies with two or more piers or abutments. In making the porcelain bridge with a platinum foundation the abutment should be treated as for the placing of a Spaulding jacket crown. A die and counter-die of the prepared abutments should be obtained, then a platinum plate of No. 30 gauge should be swaged to the die. These matrices are then placed upon the crown of the teeth and trimmed to the ledge at the gingival line. A square platinum bar, No. 14, with one or more uprights for the support of the porcelain dummies, is then correctly fitted between the abutments and soldered with platinum solder. Thus we have a platinum foundation preparatory to the manipulation of the porcelain. With this foundation there is no possible chance of the displacement of the matrices, which fit snugly about the abutments.

We can proceed now to build our porcelain by whatever method we choose. It may be the Spaulding jacket method with ground facings for the abutments and dummies, filling in with porcelain to the required contouring and occlusion, or a special method I have of building and contouring the abutments and dummies while the platinum foundation is within the patient's mouth. The porcelain will shrink, and it will be necessary to build on more porcelain and contour many times before the correct occlusion is obtained.

In building a porcelain bridge without a platinum foundation, the abutments are ground similarly to the description above. Then a platinum matrix, one-thousandth of an inch fine, is burnished to the crown of each pier, and the Spaulding jacket crown is constructed. When one abutment is baked to a biscuit finish we can join an adjacent dummy to it without destroying its relation. Where the two parts of the bridge have shrunk and still retain their contour and occlusion we can join them by placing porcelain in the intervening space and building the bridge to its intended contour and occlusion. The question as to shrinkage, which disturbs the occlusion, is often asked. If the manipulation of the porcelain has been carried out properly and the intervening spaces are infinitely small, when they are filled with porcelain the shrink-

age will be reduced to a minimum. During the last year I have made a few bridges of this last type and have had notable success. The shrinkage was unnoticeable when I tried the bridge preparatory to cementing it, as the jacket crown abutments fitted perfectly.

Much of the success of porcelain bridges is due to the baking of the porcelain. If it is overbaked, the bridge is almost sure to crack under the stress of mastication and in time to fall away. I have seen many examples of this kind. It is far better that the bridge be underbaked than overbaked, as in the former case the resistance of the porcelain would be greater than when overfused. One can soon ascertain the proper baking after a few attempts.—*Dental Cosmos.*

A METHOD OF ABSOLUTE ADHESION FOR DENTURES. By O. H. Simpson, D.D.S., Dodge City, Kan. About twenty-five years ago Dr. Speyer conceived the idea of increasing the mechanical adhesion of plates by checkering the inner surface of the plate. His method was to place tin foil over metal rolls with checkers in the foil, and by burnishing the foil over the model before vulcanizing, increasing the size of the plate the thickness of the foil. Checkers were cut in cameo, which became filled with soft tartar and food mucus. Thus the membrane became affected. I have undertaken to overcome this condition by making my checkers *in intaglio* instead of *in cameo.* This is done by pasting bobbinet on the impression. This decreases the size of the plate the thickness of the netting, while the old method of using tin foil increased the size of the plate the thickness of the foil.

Cut a strip of bobbinet wide enough to cover the buccal and labial surfaces of the impression on the upper surface of the flange; tack the netting on top of the impression to edge of the flange with a small quantity of warm wax, letting the strip fall down into the impression as a curtain or veil. Where there are sharp angles split the bobbinet with scissors, as you would a metal plate at the median line or other angles to facilitate the adaptation. After the net is adapted to the surface, varnish twice with good shellac varnish, being careful to paste the netting down at every point, as otherwise plaster of paris will run under the netting when the model is poured. After the model is poured and opened

take a sharp knife-blade or sharp instrument and cut a groove on the palatal surface of the model, not over a quarter of an inch from the top of the ridge, extending over the heels of the plate to each condyle. his latter serves as a bead to which the plate may be finished at the heel. Drag a ball burnisher through this line, first made in the model by a sharp instrument, thus making a smooth groove or track. This will raise the bead of plate, making the suction cavity over the greatest area that possibly can be had. It relieves the pressure in the roof of the mouth, and does away with the necessity of trimming the model or impression, as is usually the case. Take no precaution to guard against soft or hard spots in the mouth other than this. No paring is necessary. This bead will imbed itself in the soft tissue after a time and prevent the plate from being dislodged when biting on the front teeth. This checkering will increase the mechanical attachment at the flange, thereby making the greatest possible adhesion. The bead should be made of depth in the model about the thickness of a sheet of blotting paper. It will not irritate the mouth, even though twice as thick. Impressions for dentures should be taken with stiff plaster of paris. When inserted in the mouth the impression tray should be rotated laterally, thus pushing the buccal and labial soft tissues out of the way, besides compressing the other soft tissue pads.—*Dental Brief.*

DENTISTRY IN THE TOMBS.—Harry K. Thaw's dull routine of daily life in the tombs was broken recently, when he was allowed to have his teeth repaired by his dentist, Dr. H. A. Parr, of No. 24 West Thirty-second street. "There are several cavities that I want you to fill, so that I can eat my Thanksgiving dinner with my wife and family in as hearty a manner as ever," he said cheerily to the dentist. In a neighboring vacant cell a dentist's chair was constructed, and with two of the Tombs attendants watching, the operation was performed.—*New York Herald.*

DENTAL SOCIETY SUED FOR DAMAGE SUIT FEES.—A dental society of Philadelphia is made defendant in a suit brought by the executors of the will of Dr. Thomas W. Evans, the American dentist, who died in Paris, France, in 1897. The suit begs that the society be compelled to deposit $200,000 with the government of France to cover the costs of the damage suit caused by the society's attachment of the proceeds of the recent sale of the Palais des Souverains property for $700,000, which blocked the distributions. Similar action may be brought against the city of Philadelphia.

The Dental Digest.

PUBLISHED THE LAST WEEK OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

THE REORGANIZATION MOVEMENT.

In our last issue we published a paper affording a detailed explanation by Dr. Arthur D. Black on the organizing of the dentists of the State of Illinois into the State Society. We are particularly interested in this work because we believe it is in the right direction and is what every state should do, for we never can hope to be a learned and well working profession until each member practicing belongs to his State Society.

Dr. Black's paper explains quite fully the nature of the work, he having been largely instrumental in carrying out the plans, but there is another feature in connection with this reorganizing of the dental profession, which is quite as important and needs more serious care to make it a success than would generally be realized. We allude now to the working of the different local societies.

It will be necessary for the local societies to become well organized and to work in harmony in the way of original investigation and true society work, as it is the small local societies that must largely cover the detail work of original investigation and literary endeavor. These societies, in some instances, will need coaching and assistance from experienced men in certain lines of work, but we have great hopes of rapid strides for the growth of our profession intellectually growing out of this movement.

We hope the different members of the dental profession, who are interested in its progress, will study the methods adopted by Dr. Black and his committee and commence at once to reorganize the dentists of the different states in which they live. This organizing is largely the work of a small central committee, that shall be the leading and controlling force in the work done.

It is this form of organization that has been the great aid to the

medical profession, and they are, as is well known, much better organized than are we, and our movement in Illinois has been carried out on very similar lines, as we understand it, to those by which the medical profession was organized.

We call attention to this at the present time, so as to give it double emphasis and instil it into the minds of those men who shall embrace the plan where they have not already done so. As we understand it, it is the ultimate aim to have each member of the State Society become a member of one national body. It needs no stretch of the imagination to realize and understand something of the benefits that must grow out of this work to the profession generally, so soon as this national reorganization is taken up in earnest.

Notices.

ONTARIO DENTAL SOCIETY.

The eighteenth annual meeting of the Ontario Dental Society will be held in the College Building, Toronto, Ontario, February 25, 26 and 27, 1907.

A. E. WEBSTER, Secy., Toronto, Canada.

FIRST AUSTRALIAN DENTAL CONGRESS.

The first Australian Dental Congress will be held in Sydney, New South Wales, at the Medical School of the University of Sydney, and the United Dental Hospital, February 4 to 9, inclusive, 1907.

W. H. WESTON, Secy., Sydney, N. S. W.

BLACK HILLS DISTRICT DENTAL SOCIETY.

At the first tri-annual meeting of the Black Hills District Dental Society held in Deadwood, S. D., December 29, 1906, the following officers were elected: President, F. M. Gantz, Deadwood; Vice-President, J. L. Benson, Spearfish; Secretary, Aris L. Revell, Lead; Treasurer, G. E. LeMar, Rapid City. Fourteen charter members signed the constitution.

ARIS L. REVELL, Secy.

FIRST FRENCH CONGRESS OF STOMATOLOGY.

The first French Congress of Stomatology will take place in Paris from August 1 to 5, 1907.

The congress will be open to all French and foreign doctors of medicine who are interested in dental and oral science. Subscriptions and communications should be addressed to the General Secretary,

DR. J. CHOMPRET, 182 Rue de Rivoli, Paris, France.

SAN FRANCISCO DENTAL SOCIETY.

At the regular meeting of the San Francisco Dental Society the following named officers were elected for the ensuing year: President, H. A. Fredrick; Vice-President, L. V. Levenger; Recording Secretary, L. C. Heller; Financial Secretary, F. J. Lane; Treasurer, W. A. L. Knowles; Librarian, M. A. Greenlaw.

L. C. HELLER, Secy.,
2127 Fillmore St., San Francisco.

MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of the Massachusetts Board of Registration in Dentistry for the examination of candidates will be held in Boston, Mass., March 6, 7 and 8, 1907.

Application blanks may be obtained from the Secretary.

G. E. MITCHELL, D. D. S., Secy.,
25 Merrimack St., Haverhill, Mass.

IOWA STATE BOARD OF DENTAL EXAMINERS.

The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, February 6, 7, 8 and 9, 1907.

Candidates will be furnished with proper blanks and such other information as is necessary upon application to the secretary.

All applications must be filed with the secretary five days prior to the date of examination.

Address all communications to

E. D. BROWER, Secy., Le Mars, Iowa.

BOARD OF DENTAL EXAMINERS OF CALIFORNIA.

At the meeting of the Board of Dental Examiners of California, held in December, 1906, the following officers were elected: President, Garrett Newkirk, Pasadena; Secretary, C. A. Herrick, Jackson; Treasurer, Joseph Loran Pease, Oakland.

The next meeting of the Board will be held in Los Angeles, beginning on the second Monday in June. This will be followed by an examination in San Francisco, beginning on the third Monday in June.

C. A. HERRICK, Secy., Jackson, Cal.

RESOLUTIONS ADOPTED BY THE AMERICAN SOCIETY OF ORTHODONTISTS.

Resolved, That in the opinion of the members of the American Society of Orthodontists the practice of paying a commission, honorarium, or any sort of fee, in consideration for the reference of a patient is both unwarrantable and unprofessional; and be it

Resolved, That in the payment of any such commission, honorarium, or

fee, by any member of this society shall be sufficient cause for the expulsion of said member by vote of the society after conviction; and further, be it

Resolved, That in case of co-operation in the care of a patient between a general practitioner and an orthodontist, there shall be no division of fees, but each man shall render a separate bill for his personal services.

FREDERICK S. MCKAY, Secy.

DETROIT DENTAL SOCIETY.

The Detroit Dental Society will hold its annual Midwinter Clinic and Banquet on February 16, 1907, at Detroit, Mich.

The program is now being arranged by the Clinic and Banquet Committees, and the aim will be to have both the Operative and Table Clinics of a very high standard.

As this is the largest meeting of this character occurring in this State during the winter months, we extend a most cordial invitation to all members of the profession in the United States and Canada.

For any further information apply to

GEORGE F. BURKE, Secy.,
No. 315-317 Stevens Bldg., Detroit, Mich.

CONSOLIDATION OF THE FRATERNAL DENTAL SOCIETY AND THE SOCIETY OF DENTAL SCIENCE OF ST. LOUIS.

At a joint meeting of the Fraternal Dental Society and the Society of Dental Science of St. Louis, held December 18, 1906, a consolidation of the two societies was effected, the society to be known in the future as the St. Louis Society of Dental Science.

The officers and committees for the ensuing year are: President, D. O. M. LeCron; Vice-President, Richard Summa; Secretary, Clarence O. Simpson; Treasurer, W. E. Brown; Executive Committee—W. L. Whipple, E. E. Haverstick, Herman F. Cassel; Advisory Council—George A. Bowman, A. H. Fuller, Adam Flickinger, Wm. Conrad, Burton Lee Thorpe, Edward H. Angle, E. P. Dameron.

CLARENCE O. SIMPSON, Secy.,
457 Century Bldg., St. Louis.

RESOLUTIONS ON THE DEATH OF C. R. TAYLOR, D. D. S.

WHEREAS, Having just learned by telegram of the departure from this life of our friend and brother of this association, Dr. C. R. Taylor, a member of the Board of Dental Examiners of the State of Illinois, and

WHEREAS, Dr. Taylor had shown himself to be an honest and upright gentleman, and an earnest worker in this association for the advancement of higher requirements upon the part of those seeking entrance to the dental profession, and being himself an example of uprightness, probity, conscientiousness, integrity, industry, intelligence and gentility, we, the members of this association, keenly feel the loss we have sustained by his removal to that bourne from which no traveler returns; and mingle our

tears with those of his surviving wife and daughter, while we endeavor to uncomplainingly submit to the inevitable forces of nature which separate us from those we love, and

WHEREAS, We shall forever in this life miss the smile of his genial countenance and the benediction of his personal presence. We shall always reap the benefits of the influence of the purity of his thought and the spirit of righteousness which permeated his whole character and illuminated his every action; therefore, be it

Resolved, That this resolution be spread upon the minutes of this association, and that an engrossed copy of the same be presented to his surviving family.

National Association of Dental Examiners { CHAS. P. PRUYN, J. A. HALL, F. A. SHOTWELL, } Committee.

RESOLUTIONS ON THE DEATH OF CHARLES C. CHITTENDEN, D. D. S.

WHEREAS, Dr. Charles C. Chittenden, late of Madison, Wis., was for many years a valued and prominent member of this association, having in the course of his connection therewith graced the meetings of this society by acting as its president, and having for many years occupied, with marked distinction, the position of chairman of the Committee on Colleges, where he rendered services of inestimable value not only to this association but to the whole profession of dentistry at large, and

WHEREAS, Dr. Chittenden departed this life in the month of December, 1905, and

WHEREAS, This association, in regular convention assembled, unanimously adopted a motion appointing a committee to prepare suitable resolutions touching this sad and lamentable event, therefore your committee recommends that it be

Resolved, That in the life of Dr. Chittenden he exemplified all the graces and virtues of an upright Christian gentleman, the fidelity and affection of a loving brother in the truest and broadest sense of these words, the patriotism and public spirit of a true and loyal American citizen; and. through the inherent force of his firm and manly character, his courteous and kindly nature and his sympathetic and affectionate disposition, he enjoyed the confidence, respect and esteem of a large and appreciative clientele, and

Resolved, That in his death his sorrowing family have lost a devoted, unselfish and affectionate member, at whose untimely demise we mingle our tears with theirs, and this society has suffered an irreparable loss in that it has been deprived of the benefit of his untiring and unremitting interest and work in all that made for the uplifting of the association, the improvement and advancement of the science of dentistry and for higher ideals and more permanent results in dental education; and that each member of

this society who enjoyed the privilege of a personal acquaintance with him has lost the benefit flowing from the beauty of his character and the inspiration to better and higher things, reflected in his gracious and noble personality; and the world of dentistry has lost one whose whole life was a patient and constant struggle toward higher attainments, through more thorough, honest and conscientious methods of dental education; and the entire community has suffered a loss which it is hard to believe can ever be filled, and

Resolved, That these resolutions and the discussions thereon be spread in full upon the minutes of this meeting and a copy thereof be sent by the secretary to the bereaved family.

National Association of Dental Examiners { J. A. Hall, Chas. P. Pruyn, F. A. Shotwell, } Committee.

THE G. V. BLACK DENTAL CLUB CLINIC.

The annual Midwinter Clinic of the G. V. Black Dental Club will be held at the Old Capitol Building, St. Paul, Minn., on Tuesday and Wednesday, February 26 and 27, 1907.

The clinic committee has prepared the best program possible for it to arrange. The operative clinics and the list of essayists speak for themselves.

The list of Table Clinicians has not been completed, but a special effort is being made to have upon it the names of many men who will give as interesting demonstrations as appear upon other portions of the program.

Correspondence with exhibitors leads us to the belief that that which is new will be displayed for those coming from a distance.

Those who are interested in progressive dentistry are most cordially invited to attend our meeting and take part in the discussion of the clinics and the ideas which will be presented by the essayists.

Special railroad rates on all railroads.

As there will be other conventions held in St. Paul at the same time, it is suggested that arrangements be made in advance for rooms.

The Merchants Hotel and the Ryan Hotel have made a special rate for those attending the meeting.

The secretary will gladly reserve rooms for all writing him.

R. B. Wilson, Secy.,
American Nat. Bk. Bldg., St. Paul, Minn.

THE JAMESTOWN DENTAL CONVENTION.

The Jamestown Dental Convention, to be held under the auspices of the Jamestown Exposition Company, the Southern branch of the N. D. A. and the Virginia State Dental Association, will convene at Norfolk, Va., September 10 to 12, 1907. The Jamestown Exposition Company has appointed the following gentlemen a committee on organization to elect officers in advance of the meeting, to appoint all committees, to finance the meeting and to bring it to a successful termination: Drs. Burton Lee Thorpe of

St. Louis, Mo., Chairman; H. W. Campbell, Secretary, Suffolk, Va.; F. W. Stiff, Treasurer, Richmond, Va.; R. H. Walker, Norfolk, Va.; Thomas P. Hinman, Atlanta, Ga.; J. E. Chace, Ocala, Fla.; Clarence J. Grieves, Baltimore, Md. The committee on organization has appointed Dr. Clarence J. Grieves, Baltimore, Md., general chairman of the Clinic Committee and supervisor of clinics. A number of well-known men will assist him on the general committee.

State clinic chairmen have been selected from every State in the Union. The clinics are to be the principal features of the convention. It is expected to bring about the largest and most instructive dental clinic ever held. A Surgical Clinic will also be held under the supervision of Dr. L. M. Cowardin of Richmond, Va. The other members of this committee are J. Y. Crawford, Nashville, Tenn., and A. G. Friedrichs, New Orleans, La. Dr. F. W. Stiff of Richmond, Va., is general chairman of the Membership Committee. Assistant state chairmen have been appointed from every State in the Union. Already membership fees are being sent in, and the promise is for the largest gathering of dentists ever held. Only five essays will be read at the convention—one by Prof. W. D. Miller, another by G. V. Black; the other three by well-known Southern dentists. Several exhibits of much interest to the profession will be held under the auspices of the convention, amongst them the dental manufacture exhibit in charge of Dr. John W. Manning, chairman, of Norfolk, Va.; a comparative anatomy exhibit, in charge of Dr. W. M. Bebb, chairman, of Los Angeles, Cal. This exhibit will consist of 3,000 comparative specimens. To those will be added numerous other collections of interest, a dental historical exhibit consisting of ancient instruments, operative and prosthetic work, books and photographs, under the chairmanship of Dr. William H. Trueman of Philadelphia, Pa.; the orthodontia exhibit, showing a large collection of models, etc., under the chairmanship of Dr. H. E. Kelsey of Baltimore, Md.; the U. S. Naval dental exhibit, showing 3,000 charts of the mouths of midshipmen, under the chairmanship of Dr. Richard Grady, the U. S. naval dentist surgeon of Annapolis, Md. The exhibit of the U. S. Army dental corps, under the chairmanship of Dr. John S. Marshall of San Francisco, Cal., will show the equipment, method of keeping records, etc., used by the dental corps. A full list of the various officers which are to be elected in advance by the Committee on Organization at its next meeting in February, 1907, and of the committees will appear in due time in the various dental journals. The Committee on Organization is expected to select officers in advance in order that the officers may be prepared for their duties before the actual convening of the convention. A cordial invitation is extended to all reputable members of the profession to become members of this convention and assist the Committee on Organization in bringing about one of the best, if not the best, dental meetings ever held. The exposition itself offers an excellent opportunity for the busy practitioner to take a delightful vacation, see the wonderful historical, naval and military exhibit at the exposition and also participate in this meeting. The member-

ship fee, which is $5, should be sent to Dr. F. W. Stiff, treasurer, 600 East Grace St., Richmond, Va. For further information address

H. W. CAMPBELL, Secy., Suffolk, Va.

LATEST DENTAL PATENTS.

833,883. Forming dental structures, John A. Lentz, Phœnix, Ariz. Ter.
834,515. Artificial denture, Ernest D. R. Garden, Tarrytown, N. Y.
834,594. Obtunding apparatus, Crittenden Van Wyck, San Francisco, Cal.
834,676. Dentifrice, Herman C. G. Luyties, St. Louis, Mo.
834,790. Dental and surgeon's cabinet, Wm. C. Wolford, Confluence, Pa.
834,899. Dental handpiece, Wallace W. Freeman, Norfolk, Va.
835,358. Rubber dam adjuster, Thomas F. Kennedy, Janesville, Wis.
835,365. Combined toothbrush and holder, Robert W. Morgan, Youngstown, Ohio.
835,431. Projector for pathological work, Henry A. Hughes, St. Louis, Mo.
835,432. Rubber dam or bib holder, Henry A. Hughes, St. Louis, Mo.
835,628. Instrument for softening dental trial plates, Joseph Miller, Bexhill, England.
835,709. Toothbrush, Chauncey D. Miller, Poughkeepsie, N. Y.
835,732. Toothbrush holder, Wm. E. Lawrence, Minersville, Pa.
835,861. Toothbrush cup, Israel W. Lyon, Englewood, N. J.
836,001. Dental tool, John E. Argue, Red Lake Falls, Minn.
838,305. Design top for powder receptacles, John H. Goss, Waterbury, Conn.

News Summary.

DR. BOEN, a dentist of Richmond, Ky., died Dec. 22, 1906.

PHILIP WEIL, a dentist of Buffalo, N. Y., died Dec. 6, 1906.

JAMES J. FORD, a dentist of Dorchester, Mass., died Jan 3, 1907.

JOHN P. GOOD, a dentist of St. Joseph, Mo., died Jan. 7, 1907.

JAMES A. DALE, a dentist of Washington, Ind., died Jan. 2, 1907.

J. HALL MOORE, a dentist of Richmond, Va., died Dec. 28, 1906.

W. P. SMITH, a dentist of Monmouth, Ill., died Dec. 25, 1906.

MRS. ELIZABETH BERG, a dentist of Chicago, died Dec. 8, 1906.

JAMES L. CLAPP, a retired dentist of Chicago, died Dec. 21, 1906.

WILLIAM B. MORRILL, a dentist of Portland, Me., died Dec. 4, 1906.

NORMAN W. BUEGE, a dentist of Detroit, Mich., died Dec. 10, 1906.

WILLIAM S. MILLER, a dentist of Winchester, Va., died Jan 6, 1907.

ARTHUR H. JASMIN, a dentist of Holyoke, Mass., died Dec. 2, 1906.

JAMES C. ORCHARD, a dentist of Tacoma, Wash., died Dec. 7, 1906.

U. D. BILLMEYER, a dentist of Chattanooga, Tenn., died Dec. 2, 1906.

E. GAITHER HARRIS, a dentist of Washington, D. C., died Dec. 31, 1906.

JAMES R. WALTON, a dentist of Ashland City, Tenn., died Dec. 12, 1906.

WILLIAM H. RICHARDSON, a dentist of Linden, N. Y., died Dec. 20, 1906.

FREDERICK L. HERRMAN, a dentist of Ann Arbor, Mich., died Jan. 3, 1907.

CHARLES N. HICKOCK, a retired dentist of Everett, Md., died Dec. 4, 1906.

MRS. E. T. BLACK, wife of a dentist of Tecumseh, Neb., died Dec. 18, 1906.

MRS. JOSEPH R. HIBARGER, wife of a dentist of Polo, Ill., died Dec. 23, 1906.

ALBERT HEWLETT EVERETT, a dental student of Brooklyn, N. Y., died Dec. 29, 1906.

WILLIAM IRWIN WINGATE, a dentist of Somersworth, N. H., died Dec. 20, 1906.

H. L. AGARD, a dentist of East Aurora, N. Y., committed suicide Dec. 21, 1906.

CORNELIUS ACKERSON MARVIN, a pioneer dentist of Brooklyn, N. Y., died Dec. 15, 1906.

MICHAEL FRANCIS O'CONNOR, proprietor of a dental house of Brooklyn, N. Y., died Dec. 31, 1906.

B. B. CHANDLER, a dentist of Hyde Park, Mass., died Jan. 3, 1907. He was the oldest practicing dentist in New England.

TO REMOVE WAX FROM UTENSILS.—When pans or wash-basins get waxy, clean with kerosene.—*Western Dental Journal.*

DENTIST ACQUITTED.—A dentist of Richwood, Ohio, was acquitted Dec. 5, of the charge of robbing his office companion of $55 and a gold watch.

DENTIST AN AUTHOR.—Dr. W. H. Lillibridge, a former dentist in Traer, Ia., has published a book entitled "Ben Blair," a story of western life.—*Summary.*

DIED IN DENTAL CHAIR.—Albert Isch, aged 25 years, of Massillon, Ohio, died October 31, as the result of taking chloroform for the extraction of a wisdom tooth.—*Summary.*

NEW DENTAL LAWS FOR SOUTH DAKOTA.—South Dakota dentists are pushing the formation of new dental laws which will be more rigid than those which have stood in the past.

MEETS MYSTERIOUS DEATH.—Dr. C. H. Harvey, aged 57, one of the best known dentists of Erie, Pa., met death in a mysterious manner. His body was found in the bay.—*Summary.*

ACCIDENTS.—Dr. George B. Hynson of Milford, Del., on Dec. 28, 1906, was severely bruised by a cabinet falling on him.—Dr. E. H. Kimball of Marion, Ind., was slightly burned recently, when an explosion occurred in his office.

HONORED BY KAISER.—Ann Arbor dental students who are in search of material for a thrilling college yell are recommended to inspect the title of "kaiserlicher geheimer medizinrat," which the kaiser recently conferred on Dr. W. D. Miller, the newly-appointed dean of the College of

Dentistry, University of Michigan. The imposing title means, "imperial privy medical councilor, professor and doctor."

OLD MODELING COMPOUND.—Warm up your old modeling compound and roll out in thin sheets on glass with large bottle. Makes excellent base plate for taking bites.—*Western Dental Journal.*

CONVICTED FOR ROBBING DENTAL OFFICES.—George Howarton of Leavenworth, Kan., has been sentenced to serve a term of from five to ten years in the state penitentiary for robbing several dental offices.

DENTIST BECOMES INSANE.—A dentist of San Pico, Fla., while staying at a San Francisco hotel, became insane and was removed to the detention hospital. Alcoholism was the cause of his sudden insanity.

A QUESTION OF CHOICE—

Dentist—Will you take gas or cocain?

Victim—Neither. I'll take ether.—*Music Trades,* of New York.

IODOFORM IN ROOT TREATMENT.—If iodoform be used in root treatment, put a Tonquin bean in a small bottle of the drug; this, to a great extent, will obviate its unpleasantness.—H. LEONARD DORRELL, *Dental Record.*

DENTISTS IN POLITICS.—Dr. Charles E. Foote, a dentist of Cumberland, Wis., has been elected mayor of his town.—Dr. S. S. Sutphin is representative for Raleigh county in the State Legislature of West Virginia. He is a Republican.

QUICK INVESTMENT MATERIAL.—For quick investment for soldering bands, clasps, etc., keep on hand the following mixture: Equal parts of prepared chalk and fine sand, kneaded in glycerin, making a plastic mass.—*Dental Hints.*

SOLUTION TO REMOVE STAINS OF SILVER NITRATE AND OTHER SALTS OF SILVER.—Ammonium chlorid, 1 part; mercury bichlorid, 1 part; water, 8 parts. Apply and wash off with soap and water.—W. H. TWEEDLE, HOPEDALE, ILL.—*Dental Review.*

FOUNDS SCHOLARSHIPS.—Through the generosity of Dr. C. H. Roberts, a dentist of Oakes, Ulster County, N. Y., the Cornell College of Agriculture will receive an endowment of $30,000, to be used in the founding of scholarships.—*Goshen Republican.*

DENTIST LOSES A FINGER.—Dr. E. A. Woelk, a dentist of Belleville, Mo., submitted to the amputation of the index finger of his left hand. While adjusting a glass tube in an instrument the tube broke and cut his hand. Septicemia developed.—*Summary.*

PERHYDROL IN DENTISTRY.—Dr. Bayer (*Aerztl. Reform-Zeit.,* 1905,) finds that the pure peroxid of hydrogen recently placed upon the market under the name "perhydrol" is a very reliable hemostatic in hemorrhages from the gums, and after the extraction of nerves. One part of perhydrol to three of water will check even severe bleeding, and the action will persist if the area is touched up repeatedly. For septic root canals and teeth with fistulæ, it is advisable first to cleanse the parts mechanically, then to use a 10 per cent dilution, and finally the pure

perhydrol. Excellent results are also obtained with the pure preparation in pyorrhea alveolaris. The peroxid seems to keep well, for after one year it was found to still possess its original strength.—*The Stomatologist.*

To Deodorize Putrescent Pulp.—In opening a tooth with putrescent pulp, where the odor is something terrible, just apply to the cavity a small pledget of cotton previously dipped in Terebene and the offensive odor will change to that of attar of roses.—*Dental Review.*

Crown Pins.—We know that the farther into the ground a fence post is placed the more secure it is. So, also, the deeper into the root we put the pin, the more secure becomes the attachment, and the whole root bears the shock of any strain.—R. L. Simpson, *Dental Cosmos.*

Nuts in Regulating Appliances.—It is an excellent plan to taper off the end of the screw slightly, so that when the nut is taken in the tweezers it will readily slip on to the end of the screw, which is not the case when the threaded portion is cut off square.—W. Matthews, *Dental Record.*

A Case of Correction—

Dentist—Little girl, which is the tooth that aches?

Boston child—I have no tooth that aches, sir, but there is an exceedingly sensitive nerve in the upper right bicuspid, which I shall have to ask you to treat.—*Exchange.*

Sensitive Cervical Margins.—If bicarbonate of soda is incorporated in the tooth powder used by the patient, sensitiveness will be relieved and he enabled to thoroughly masticate, bringing about a normal condition of the saliva, and alkaline powder will not be long required.—D. Spalding, *Dental Register.*

Enamel Margins.—The rule for enamel line finish must vary with the plasticity of the filling material. "As plasticity of filling material increases, so increase the property of adaptability, and as we approach the unyielding in filling material, so must we smooth or polish our margins." —Clyde Davis, *Dental Summary.*

Cleaning Files.—When a vulcanite file becomes clogged with rubber and plaster, it may be easily cleaned by wrapping absorbent cotton around it and saturating the cotton with chloroform. In about ten minutes it can be cleaned perfectly by the use of a stiff brush wheel on the lathe.—V. P. Perisho, Streator, Ill.—*Dental Review.*

Hemostatic Properties of Potassium Permanganate.—For arresting hemorrhage following minor surgical operations, Dr. Voerner employs potassium permanganate, either in solution, in powdered form, or as a paste. To obtain a fine powder two parts of the permanganate are mixed with one of powdered talc. The combination is then wetted, and after drying is repulverized. The paste is prepared by adding paraffin to the powder. To arrest a hemorrhage, the affected part is first freed of blood, debris, etc., and the permanganate is subsequently applied. Slight hemorrhages are arrested at once. To prevent the pain which follows the application of

the agent the hemorrhagic area is previously treated with a cocain solution. Owing to the antiseptic properties of potassium permanganate, all danger of wound-infection is entirely eliminated.—(*La Odontologia,* Madrid,) *Dental Cosmos.*

USE OF COMPRESSED AIR.—There are many uses for compressed air. One use is to dry your hypodermic syringe needle and keep it free from obstructions. Compressed air will do this; insert your needle point into the nozzle. You can put some vulcanized rubber over the nozzle and it will blow it right through.—*Dental Register.*

ENGLISH HUMOR.—"To clean the teeth use a mixture of emery and sweet oil, following it with plenty of lamp oil." This would seem to be queer advice; but as it is taken from a machinists' magazine, and from a chapter relating to circular saws, we have no doubt it is given in good faith.—*British Dental Journal* (*Summary*).

FREAKS IN TEETH.—That she has cut her fourth set of teeth is the proud boast of Mrs. Annie Pugh of Baltimore, Md. She is said to have discarded her false teeth, and to be suffering as a baby suffers during teething.—Mrs. Mary G. Parsons of Portland, Ore., is 77 years old and is said to have cut recently a molar and a front tooth.

POLISHING GROUND SURFACE OF PORCELAIN TEETH.—A cleansing preparation known as *Porcela* (compounded for the purpose of cleaning and polishing porcelain bath-tubs, etc.) gives an excellent polish to porcelain teeth which have been ground. Moisten with water and use with a felt wheel on the lathe.—ED. C. DURYEE, *Dental Cosmos.*

EXCESSIVE FLOW OF SALIVA.—In case of excessive flow of saliva (especially when the operation is to be upon a lower molar) prescribe a dose of atropin sulphate (1-120 grain) three-quarters of an hour before the appointment. This salt of atropin has a much better effect on the secretion than the ordinary alkaloid.—H. OTIS LOGUE, *Stomatologist.*

A GOLD CORNER ON A PORCELAIN FACING.—Grind off the corner and burnish the backing over the corner; remove, invest and solder on the gold corner. Polish and replace on the porcelain. By this method you do not require a diamond drill. Admissible only in a mouth where other teeth are already contoured with gold.—L. A. STEMLER, *Items of Interest.*

CEMENT FILLING SHOULD OVERLAP CAVITY MARGINS.—I have always been very particular to finish a metal filling perfect with the contour of the tooth. With cement fillings I pursue the very opposite method. I desire the filling to lap over the entire margin of the cavity. This method has given very gratifying results. By this method, I have found that disintegration near the gingival border of the cavity, on account of chemical decomposition, is less evident than reduction of size on account of attrition. Such disintegration near the gingival border of the cavity was a source of aggravation a number of years ago. Once upon a time I conceived the idea of permitting my cement fillings to overlap and remain

so, and the result was very satisfactory. Another source of satisfaction I had was that the protruding and overlapping filling was never productive of irritation or inflammation of the gums.—D. M. OLNECHT, *Dental Summary.*

ILLEGAL PRACTITIONERS.—Dec. 4, 1906, a suit was filed in New York charging a corporation with practicing dentistry illegally.—Dec. 5, 1906, the jury trying the case of a dentist of Cripple Creek, Colo., charged with practicing dentistry illegally, disagreed, and the case was dismissed.—Dec. 31, 1906, a Sioux Falls (S. D.) dentist pleaded guilty to the charge of practicing dentistry without a license and was fined $100.

CORRECTION.—In our September issue we published an item regarding the death of a woman on Sept. 12, in Rockford, Ill., resulting from the administration of chloroform. We have since learned, however, that the patient died from the effects of an administration of Somnoform, this, so far as can be traced, being the first death from this agent occurring in the United States.

EXTRACTION IN TOOTH REGULATION.—In the cases that I have on hand for correction, where rows of the permanent teeth have been extracted by dentists, there is not a single one that helped the case one iota; on the contrary, the cases were so mutilated that perfect results could not be obtained unless the extracted teeth were replaced by prosthetic means.—T. J. BRADFORD, *Dental Summary.*

DENTAL BOARD WOULD NOT SHORTEN ANATOMY.—The dental students of the Medical College of Virginia were much disappointed when the State Board of Dentistry refused to agree to the change in the course of anatomy. The dentists will have to study the anatomy of the whole body. The college agreed to let them take only the anatomy of the head and shoulders, but the State Board would not agree to it.—*Richmond Leader.*

DIVORCES.—Jan. 12, Mrs. Katy Leininger brought suit for divorce from her husband, a dentist of Chicago.—Dec. 4, Mrs. J. B. George sued for divorce and alimony from her husband, a dentist of East Liverpool, Ohio. —Dec. 6, Mrs. Kennith McAlpin brought suit for divorce from her husband, a Pittsburg dentist.—Mrs. John H. Jackson, who lives in Spokane, Wash., is suing her husband, a dentist of Boston, for a divorce.—Mrs. Emilie M. Pearce has brought suit for a divorce from her husband, Dr. Benjamin F. Pearce, a dentist of San Francisco, Cal.

BRACKET TABLE.—If you have a good cabinet you do not need a table with drawers. Have a table made of plate glass, fourteen inches square and one-half inch thick. The corners may be slightly rounded and the edges should be smooth. Have holes drilled and countersunk for screws to attach the table to bracket spider. The heads of the screws should be even with the upper surface of the glass. The advantages of this table are: Aseptic, neat in appearance, instruments four inches lower than old table; acids do not injure it; cuts off no light. I use J. & J. paper covers,

which deaden sound of instruments and prevents them from rolling off table.—BENJ. BLOXTON, RICHMOND, VA.—*Dental Review.*

AN ASEPTIC CAVITY.—If the cavity be thoroughly dry, an application of absolute alcohol for a minute, followed by one of the essential oils, such as cloves or cedar, for two minutes, is all that is necessary. The oil will rapidly displace the alcohol, and though its antiseptic power is small, it is kept in place by the filling for so long a time that it is efficient.—W. J. LAW, *British Dental Journal.*

REGARDING DENTAL SCHOOLS.—The plans for the new dental building for the University of Michigan at Ann Arbor are being drawn by the architects. The building is to cost $75,000.

The consolidation of the Philadelphia Dental College with Temple College and Garretson Hospital is proposed, and Rev. Russell Conwell, known as the pastor of an institutional church and a lecturer, is to be the head of the new university thus formed.

ETHYL CHLORID.—There is a special field, I believe, for ethyl chlorid in cases of short operations upon persons who are not good subjects for nitrous oxid. As far as my own experience goes, it is in the cases of alcoholics and of the muscular, high-colored, thick-necked men that ethyl chlorid is particularly valuable. In such cases, I believe, if the dose is properly regulated, it can be perfectly safely given in the sitting position.—Dr. J. BLUMFIELD, *The Lancet.*

EXAMINING BOARD AFFAIRS.—The Washington board rejected 20 out of 51 applicants for licenses to practice dentistry in the state.—The New Jersey board filed a most encouraging report for the year 1906, showing that the dental laws of the state had been stringently enforced with but few exceptions.—The Pennsylvania board requires each candidate for examination to file his photograph, properly attested, to make any deception impossible.—A bitter fight is being waged on the Arizona board by a number of the dentists of the state, who filed serious charges against the board.

METHOD OF BAKING PORCELAIN.—The average piece of porcelain is over-baked. I would also consider the filling had lost from one-half to two-thirds of its strength if my first bake was a glaze. All it ought to have is to be brought up to a sandy appearance, making it look as if it had been dipped in hydrofluoric acid. We have found that the temperature to which a piece of porcelain is subject in the furnace is not the only element that changes it, but the length of time it is subjected to the baking temperature is important also. Say that a temperature of one thousand degrees would be necessary to biscuit a certain piece of porcelain in five minutes. If another piece of porcelain similarly formed was to be put into the furnace and baked at eight hundred degrees for a much longer time, you would get the same results but at a temperature of two hundred degrees less. It shows if the first portion is under-baked it will be completed at subsequent bakings, but if glazed at first baking, that portion will be much over-baked before the inlay or crown is finished.

If you will remember this you will get very much stronger porcelain.—W. H. TAGGART, CHICAGO, ILL.—*Review.*

FLUX FOR SOFT SOLDERING.—Pieces of zinc are dissolved in hydrochloric acid until the acid is saturated. The resultant solution of zinc chlorid is mixed with an equal amount of a mixture consisting of aqua ammonia and alcohol. After standing a few days the solution is filtered and ready for use. The so-called Miller's soldering fluid consists of a solution of phosphoric acid in eight parts of water, to which one part each of lactic acid and glycerin has been added.—*Dental Era.*

STANNO-PERCHA.—Scheuer's stanno-percha is a labor and time-saving material of great value. As a pulp-capping material it is without difficulty placed in correct position. Amalgam readily unites with the tin present, and either sponge gold or gold foil may be readily worked into the slightly softened layer. As a temporary filling, or for retaining arsenical dressings it is of great value and to be preferred over all other materials.—*Dental Messenger* (St. Petersburg).

ESPECIAL VALUE OF THE INLAY.—I believe that the most valuable aid that the inlay has given to dentistry has been its tending to do away with much of the radical crowning of teeth, enabling us to save more of the vital part of the tooth; namely, the root itself, which is the mainstay of the tooth, whether it contains a pulp or not. A discolored tooth should be bleached, but not cut off and crowned, which lessens the length of life of the root.—M. L. RHEIN, *Dental Cosmos.*

ETCHING VS. GROOVING.—It has been demonstrated time and again that cement will not adhere to a glazed surface as well as to an etched one. I have found from experience that in all cases where an inlay has dropped out of a cavity you will find that the cement adhered to the surface of the tooth, and not to the inlay itself. I do not attempt to groove my inlays any more on account of the danger of serious damage, and I find it not necessary.—J. E. NYMAN, *Dental Summary.*

IMPRESSION MATERIAL FOR CASES IN WHICH ALL THE TEETH ARE PRESENT.—In regulating cases, where all the natural teeth are present, plaster is the material *par excellence* to be used, and a deep tray. It is necessary not only to secure a cast of the teeth and palate, but the buccal surface of the teeth, the gums, and especially the direction of the roots. For study casts this is important, and no impression material is so reliable for this work as plaster of Paris.—E. M. KETTIG, *Dentist's Magazine.*

ECHAFOLTA.—Echafolta is anti-venom, and if taken internally and applied at once to wounds caused by bites of venomous serpents, reptiles and insects, neutralizes the virus so that scarcely any swelling or inflammation follows the trauma. Every dental practitioner is daily using explorer, excavator and bur. Points, edges and blades are sharp and sometimes wound soft tissues near. Infection carried to such a trauma by careless operator or patient (often the latter), and a full rigged "blood poisoning" may sail in. Who but the dentist should "clear decks" for

action? Echafolta, safe, *sure*.—A. C. HEWETT, CHICAGO, ILL.—*Dental Review.*

BUSY DENTIST CONVICT.—Charles Bennett, a convict in the Ohio penitentiary, is the most ingenious dentist on record, if the stories told of him are true. He is said to have made himself a set of teeth, his material being a beef bone and his instruments a little saw and penknife. He pulled his decayed teeth, so the story goes, by means of a violin string and made his false teeth the same shape and size as those he had pulled, grooving them to fit the gum and the teeth on each side.

ALCOHOL INJECTIONS IN NEURALGIA.—Oswalt injects 1 or 1.5 c.c. of 80 per cent alcohol, to which .01 gm. of cocain or stovain has been added, making the injection along the trunk of each of the branches affected, at the point where they emerge from the bone. He has never had the slightest mishap or unpleasant by-effect. The pain was arrested at once. In at least 90 per cent of the cases the neuralgia was cured by the procedure.—*Journal American Medical Association.*

CRACKS IN THE ENAMEL DUE TO EXPANSION OF METALLIC FILLINGS.—After inserting, as we thought, a perfect gold filling, a suspicious-looking crack may suddenly appear in the enamel. This is due to the expansion of the gold in response to the heat engendered in polishing the filling; in other words, the expanding plug of gold has burst the unyielding walls of the cavity, and so surely as the gold will contract again on cooling, so surely must it leave a space between itself and the walls of the cavity.—*Dental Summary.*

LIQUID FLUX.—The best liquid flux that I have ever used, which I compound myself and find ever ready and faithful, is:

Boracic acid.
Borax aa .....oz. ss.
Ammonia muriate .....grs. xii
Pot. carb. .....grs. v
Aqua dis. q. s iv

It will keep indefinitely and can be used on any metal for hard soldering. It should not be used, however, in connection with porcelain. —*Dental Review.*

HOW TO TAKE PARTIAL IMPRESSIONS.—Taking plaster as the only reliable material for any impression, particularly a partial one, I adopted the plan of taking all partials first in wax, using a perfectly flat cup, bringing the wax up between vacant spaces with the finger after the cup has been pressed to place; remove and chill the wax, then with a hot knife cut the entire labial and buccal wax away in front of or outside of any of the teeth; also cut the wax partly away where it laps the gum in vacant spaces from the side next the gum. Cut the wax out where impression of all the teeth is left, and then with an old excavator punch the wax full of indentations wherever the plaster covers the wax. Place plaster over the wax, with the spatula drag the plaster into the roof, and carry the cup—which will find its own way by reason of the wax—to place. Remove as

soon as the plaster left in the bowl will break with a clean fracture. The impression will break where the plaster drags. Save the pieces and replace in their respective positions on the wax; tack to place with hot wax and a most perfect impression will be secured. Any material which will bind rather than break will not secure a perfect impression, therefore plaster is to be preferred. One flat cup for the upper and one for the lower will take most partial impressions.—D. T. HILL, *Dental Summary.*

BUBBLES IN PORCELAIN.—The reason why we have so many bubbles in porcelain bridge-work is on account of using too large quantities of porcelain at one time over a rigid framework. The first bake should never cover the pins, or even touch them; if it does, on shrinking it leaves an air space beneath, which later means a bubble. Apply and bake several times, until the framework is covered, bringing to a low glaze each time, and you will have porcelain free from bubbles.—A. W. STARBUCK, *Western Dental Journal.*

TARTAR FORMATION.—I think there can be no reasonable doubt that *mouth-breathing* is related to tartar formation, at least as a contributory factor. The constant interchange of air currents brought about by mouth-breathing necessarily tends to cause evaporation of films of saliva and mucus upon the teeth. This, on the one hand, would result in loss of the dissolved carbon dioxid of the saliva, with consequent precipitation of lime salts in a mucoid medium concentrated by evaporation, or impissated by the loss of water, with the final effect of tartar formation upon the protected tooth surfaces.—E. C. KIRK, *Items of Interest.*

ROBBERIES.—Dr. H. F. Hughes of Newport, Wash., Dec. 30, valuable tools.—Dr. D. E. Smith of Wilton, Ia., Dec. 5, $15 worth of plates, platinum and solder.—Dr. James Blackwood of Sharon, Mass., $150 worth of dental supplies.—Drs. Claude G. Reimer, J. B. Zellers and W. A. Eynon of Easton, Pa., Dec. 4, $40, $15 and $43 worth of gold foil and platinum, respectively.—Dr. D. A. Dingwell of Clinton, Ia., Dec. 1, $40 worth of gold.—Dr. Rear of Des Moines, Ia., on returning to his office Dec. 29, after a week's absence, found it practically emptied of its contents.—Drs. H. J. Allen and H. D. Dawson of Washington, D. C., Dec. 1, $75 worth of gold and platinum fillings and $20 worth of fillings, respectively.—Dr. J. Hughes of Spokane, Wash., dental tools.—Dr. Jensen of Cedar Falls, Ia., Jan 6, $30 worth of instruments.

VALUE OF THE MOUTH-MIRROR.—The constant use of the mouth-mirror should be drilled thoroughly into every dental student. By its use lingual cavities in the upper incisors and canines and all cavities in the upper bicuspids and molars may be filled with far greater ease than by direct vision, and filled better, for the mirror gives a view of every part of the cavity, and in addition serves as a reflector to furnish additional light. It is of great assistance also in working upon the lower teeth, serving as a tongue-guard as well as a reflector. In addition to all this it allows the operator to stand erect, as God intended he should, and he is thus enabled to fill his lungs with life-giving oxygen instead of a mixture of carbolic acid and various noxious gases and germs from his patient's

breath—and incidentally the patient is spared the dentist's breath, which is not always to be compared with the attar of roses. How much more comfortable it must be for the patient, when the operator stands erect and fills, for instance, a distal cavity in the upper bicuspid by aid of the mouth-mirror, instead of spreading himself all over the patient's person in an effort to see what he is doing. The mouth-mirror should be the first instrument picked up when beginning to operate, and in nine cases out of ten, should not be laid down during the operation.—J. W. O'Bryon, *Western Dental Journal.*

Temperatures Afforded by Flames.—The highest temperatures afforded by flames are, according to Féry (*Pharm. Centralh.*, xlvii, p. 619), as follows:

Bunsen burner, with sufficient access of air	1871° C.
Bunsen burner, with insufficient access of air	1712° C.
Acetylene flame	2548° C.
Denayrouz's burner, with alcohol and air	1862° C.
Denayrouz's burner, with alcohol and petroleum ether (equal parts)	2053° C.
Alcohol flame	1705° C.
Hydrogen flame in open air	1900° C.
Oxygen-illuminating gas blast flame	2200° C.
Oxy-hydrogen mixture	2420° C.
Electric arc (estimated)	3760° C.
Temperature of the sun (estimated)	7800° C.

—*The Stomatologist.*

Practical Use of Compressed Air.—Practical use of compressed air is the constant blowing out of chips while excavating and drilling cavities. I often invite my patient's cooperation and he will not only keep the field of operation dry, but will also have it clear of all chips and debris and will minimize his pain by having his mind on this share of the work.

Along with the scalers I employ the compressed air for two purposes: First, with a fair degree of pressure directed into the embrasures and about the necks of teeth I am better enabled to see the location of calcareous and other deposits; and when you can see, you don't have to feel and hunt for them.

Second, after scaling, by means of the compressed air nozzle attached to a common atomizer, you can spray the gums rootward as deeply as needed, even to the bottom of pyorrheal pockets. Either a dry or a liquid medicament works perfectly. In treatments of antral empyema, or wounds from root excision or extraction, you can force medication to the deepest portions and do more good and in a shorter period than by the old methods. One can easily control a secondary hemorrhage by spraying emptied root sockets with Adrenalin solution with a fair degree of pressure. Powdered styptics can also be used in a similar manner.

In setting crowns and bridges, we ought to have absolute dryness, and we can have it with the compressed air apparatus. Furthermore, I will

say, that after the pressure has been used a few minutes, it will not only dry the abutments and piers, but actually numb the gum tissue and lessen the pain incidental to placing shell crowns. I have tried the air on my own mouth and found this to be true to a great extent. Did you ever attempt to set a lower bridge when the saliva completely covered the abutments? Did your bridgework stay? With the compressed air, properly used, you need not anticipate another loose piece of work to re-cement within a day or so.—G. Zedereaum, *Dental Register.*

Damages for Contagion from an Instrument.—An important verdict has been rendered in a case heard before Judge Crosby, of the Superior Court of Massachusetts. The plaintiff, Mrs. Ella Bates, of Cohasset, visited, several years ago, the Dr. King Company, a dentist corporation. During the treatment Mrs. Bates received a slight cut from one of the instruments. A contagious disease developed, from which she has suffered ever since, and Mrs. Bates sued the King Company for $30,000. The case has been in three different courts, and the verdict of $12,000 was a culmination of three years' work on the part of her lawyers.—*Fall River News.*

Fires.—Dr. James E. Breslin, Brighton, Mass., Dec. 31, 1906, heavy loss. —Dr. Hanson, Milaca, Minn., Jan. 2, loss $700, insurance $300.—Dr. J. L. Husband, Manistique, Mich., Dec. 25, 1906, instruments and supplies, $1,200. —Dr. C. A. Kitchen, Escanaba, Mich., Dec. 5, 1906, $1,200, loss partly covered by insurance.—Dr. W. H. Arnold, Boston, Mass., Dec. 18, 1906, heavy loss.—Dr. J. B. Stewart, Hamilton, Ohio, Dec. 21, 1906, loss $550, covered by insurance.—Dr. C. W. Harter, Perry, Ia., Dec. 25, 1906, loss $750 ,insurance $250.—Dr. C. C. Pierce, Nagocdoches, Texas, Dec. 23, 1906, loss $1,000, insurance $500.—Dr. Carlson, St. Cloud, Minn., Dec. 20, 1906, loss $1,500.

Case of Persistent Post-Extraction Hemorrhage Treated by Reimplantation.—The author relates the case of a boy, age fourteen, who presented himself at the hospital dental clinic conducted under his supervision, suffering from intense pain due to an alveolar abscess on the lower right first molar, which in all probability had been induced by caries of the fourth degree. The inflammatory process had spread considerably, as the cheeks had swelled to a voluminous size and the jaws were in tight contact with each other. Considering that the young patient was in the grip of most excruciating pain, it was decided to remove the offending organ at once, and in this connection the author discusses the question of the advisability of extracting a tooth at the height of an imflammatory process, or *au chaud.* He believes, and we concur with his opinion, that the extraction of a diseased tooth is the logical procedure (other means of treatment having been exhausted), for by doing so the basal dictum of rational pathology is carried out. The tooth was removed and the post-extraction hemorrhage was intense and persistent. After having used all physical, chemical, and mechanical means ordinarily employed to arrest alveolar hemorrhage, without success, the author, after thoroughly sterilizing the extracted tooth in a

bichlorid solution of suitable strength, reimplanted it, with the result that the hemorrhage soon ceased, and twenty-five days after the intervention the tooth appeared solidly implanted in its alveolus.—(*La Odontologia,* Madrid,) *Dental Cosmos.*

VARIOUS USES OF ICHTHYOL.—Ichthyol is one of the most interesting drugs, and yet it is not in such common use as its virtues warrant. It is prepared from an oil which is obtained by the destructive distillation of fossilized fish found in the Tyrolese mountains (in the Seefeld district). No one has yet given any rationale of its action, yet Hare declares it "the best external treatment of erysipelas that we have." In employing it in erysipelas, the skin is well washed and then anointed with the following:

Ichthyol	½ ounce
Oil citronella	20 drops
Lard of petrolatum	1 ounce

and is then covered with lint upon which the same ointment has been spread.

It is also valuable as an inunction in acute rheumatism, and the same prescription is serviceable. In chronic skin diseases characterized by atony and induration of the deeper layers of the skin, it is of marked benefit. Properly rubbed in, in cases of acute sprains, its effect is almost magical. In fissured nipples, accompanied by induration, an ointment containing 1 part of ichthyol to 4 of lanum will give prompt relief; it must be carefully wiped off the nipple before each nursing, as the "tarry" odor will frequently cause the child to refuse the breast. Agnew esteemed it highly in cases of lymphatic enlargement.—*Albright's Office Practitioner* (*The Stomatologist*).

SUPERIORITY OF GOLD INLAYS.—My idea is to prove in a purely theoretical, scientific way the superiority of gold inlays in large cavities in the posterior teeth, over all the other filling materials, even over the gold filling. Amongst others, one advantage of the gold inlay over the gold filling is that the cement we use in setting the inlay *hermetically* seals the cavity, and this is not the case with a gold filling. Even the best adapted gold filling never gives a chemical adhesion of the gold to the walls of the cavity, but always leaves a little crevice by which, even if it is microscopically fine, liquids and bacteria may enter. This crevice being hermetically sealed by the cement in case of an inlay gives us greater security against recurrence of decay. To have a practical proof of this I made an experiment, the result of which might be of some general interest. I took two molars with cavities of equal size and filled one with an inlay and the other with a very well adapted and carefully condensed gold filling. After finishing I placed the two teeth in a 5 per cent solution of eosin, which is one of the most penetrating coloring agents. After leaving in this solution six hours the teeth were taken out, washed, dried and sawed longitudinally in two pieces each. Along the cavity walls of the gold filling the eosin had penetrated

to the bottom of the cavity, staining the enamel somewhat, and the dentin to quite a considerable extent. Along the gold inlay no traces of such a penetration could be seen. With this experiment I believe I have shown a considerable advantage of the gold inlay over the gold filling.—WILHELM THIERSCH, GENEVA, SWITZERLAND.—*Review.*

TROUBLES OF VARIOUS DENTISTS.—A dentist of Little Rock, Ark., gave himself up to the officers of Memphis, Tenn., his former home, on Jan. 2, to answer a charge of having embezzled $500 from the company for which he worked in Little Rock.—A dentist of York, Pa., was arrested on Dec. 12, and failing to give bail, was put in jail on complaint of his wife, who charged him with disturbing the peace by coming home when intoxicated and beating her.—A case against a Joliet (Ill.) dentist for disorderly conduct, was discharged. He was charged by two patients, a woman and her granddaughter, with having beaten them with a book.—A Milwaukee dentist was sent to the house of correction on Dec. 18, to serve a year, for abandonment of his wife and seven children.—A dentist of Muncie, Ind., was found guilty of larceny on Dec. 10, 1906, in an unusual case growing out of a political fight. In November, 1905, a question of the eligibility of the election board arose, and the dentist, who was the clerk of the old board, refused to turn over the records and books to the clerk of the new board. The case was taken to the courts and has been in litigation ever since.—A San Francisco dentist is under arrest for the alleged embezzlement of $65 from the National Blue Cross Hospital Association.—A Cambridge (Ohio) dentist was arrested on Dec. 15, charged with having assaulted a young woman of the town.—A dentist of Macomb, Ill., brought suit Jan. 3 against a woman for $60 for work done. She claimed the work was not satisfactory. The decision was a compromise, the court ordering the dentist to make some change in the teeth and ordering the woman to pay in full.—A young woman of Kansas City, Mo., lost a suit in which she tried to recover $12 from a dentist because the teeth he had made for her did not "fill out her hollow cheeks," as she had wanted them to do.—A Council Bluffs (Iowa) dentist is suing the parents of his wife for the alienation of her affections. He claims that he aroused their enmity by refusing to become a member of the Latter Day Saints' church, of which they were members.—A dentist of Lynn, Mass., has brought suit against the woman from whom he rents, alleging that the closing of the entrance to his office, while repairs were being made to the building, injured his business.—A suit brought by a dental company of Cincinnati, Ohio, against two former employes, charging them with contempt of court for alleged violation of an order prohibiting them from using the mailing lists of the company, was dismissed.—A dentist of Pemberville, Ohio, is reported missing from his home under peculiar circumstances. He disappeared the day after Christmas, and a few days later his wife received a letter from him mailed at Toledo saying he never would return. He was clerk of the village. No shortage in his accounts or other reason for his departure has been discovered.